GLEASON'S
Horse Book

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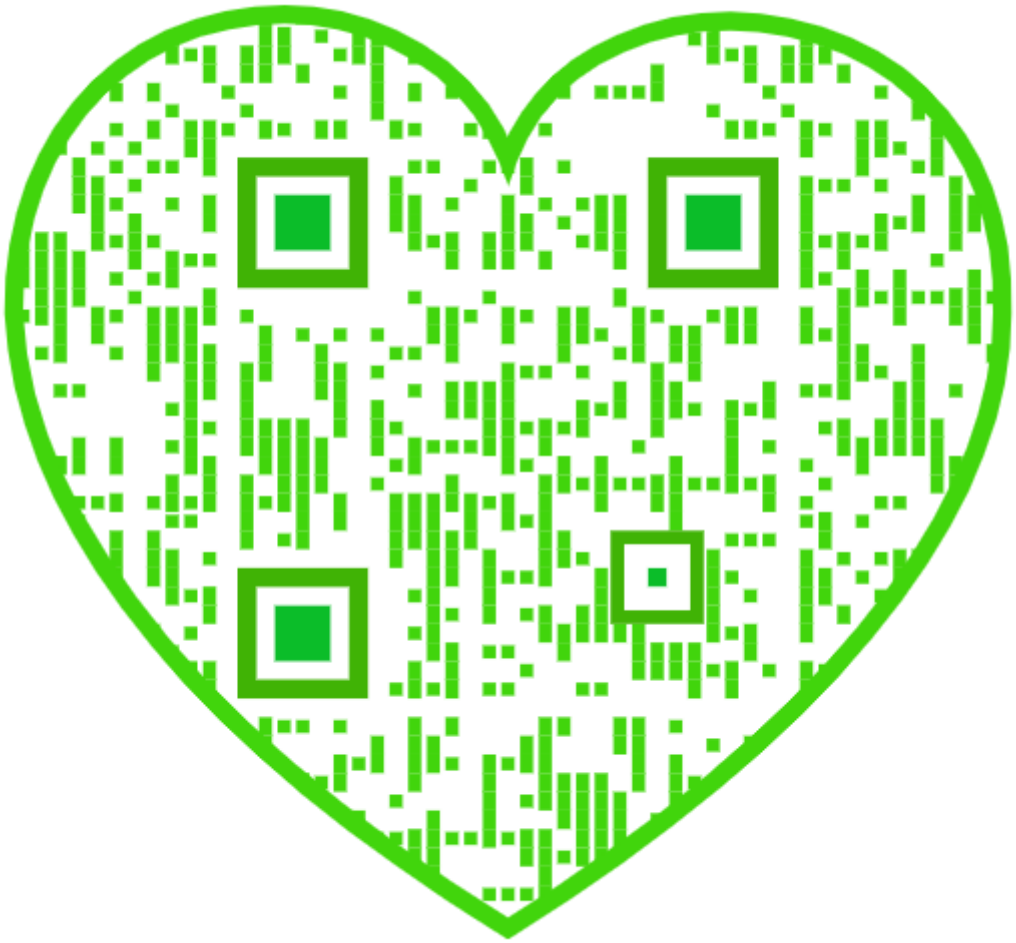

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JOHN A. SEAVERNS

THE ONLY AUTHORIZED WORK BY

HISTORY, BREEDING, TRAINING, BREAKING, BUYING, FEEDING, GROOMING, SHOEING, DOCTORING, TELLING AGE, AND GENERAL CARE OF THE HORSE.

BY

PROF. OSCAR R. GLEASON,

Renowned throughout America and recognized by the U. S. Government as the most Expert and Successful Horseman of the Present Age.

NEW EDITION.

Profusely Illustrated.

THE

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INTRODUCTION.

It is necessary for any man wishing to handle horses successfully to be self-possessed, determined, and to give some attention to the horse's natural habits and disposition. I do not think it is claiming too much for my system to say, by its use, any horse may be broke (regardless of his being previously spoiled,) so as to make him perfectly docile and even safe for a family horse.

In dealing with my plan, you are not wasting your time with a mysterious trick, with which so many are humbugged by unprincipled men who have nothing good at heart for either horse or man, but merely want ill-gained dollars. In my book you will find the principles of a universally applicable system for the better training of horses for man's use, producing such matchless docility as has not before been found. The three fundamental principles are: First, control—teaching submission and docility. This being the first lesson for the horse, is of the greatest importance, and is the same to his after education that the alphabet is to the boy's, and should be learned perfectly for ease and success in after lessons. Secondly, let kindness run through all your actions toward the horse. Thirdly, appeal properly to the horse's understanding, prudently associating mastery with kindness; rebuke wrong and reward right.

Although the horse possesses some faculties superior to man, yet he is deficient in reasoning power; he is naturally of a kind disposition, as evidenced by his attachment to his kind keeper. He has no thought of disobedience, except by the pernicious im-

prudence of violating the laws of his nature, in which case he is not in fault, but the violator. You will learn that he may be taught to perfectly submit to anything, however odious it may have been to him at first.

As the value of the horse is daily becoming more manifest, it is presumed that any attempt to reduce into a system the art of preserving him in health and removing disease will not be unacceptable.

It is certain that at no period in the history of this country has the horse stood so high in general estimation, or by the display of his various powers rendered himself an object more worthy of our consideration. As greater attention is now paid to the breeding of horses, for the different purposes of the turf and the road, so should our anxiety for their education increase.

The object of this publication is to render as plain and familiar as possible a subject that has for a length of time remained in obscurity. The want of a work advancing practical facts and illustrations has long been severely felt and acknowledged.

In the suggestions offered in this book I have preserved simplicity in describing diseases, and have prescribed such remedies as are accessible to all. For obvious reasons an extensive article on telling the age of the horse has been included, as well as easy directions for detecting unsoundness and vice in a horse.

Under this conviction I am induced to lend my aid in bringing forth the present volume.

To remove long-standing prejudices, I am aware, is a difficult task, still I venture to hope that a careful perusal of these pages will excite, in some degree, the feelings of humanity in respect to the many sufferings to which the generous animal is frequently liable from unmerited cruelty and injudicious treatment, and that mankind may be induced to view his sufferings with an eye of sympathy and tenderness, and have recourse to a rational mode of practice when accident or disease may require it.

I am not aware that any publication has been issued from the press of any country in which the science of horsemanship has been laid down in such a manner as to be clearly understood. The present work is so familiar in its composition as to render it

at once intelligible to every one who may think proper to peruse its contents.

I claim the honor of being the only horse-trainer or teacher of horsemanship who ever advanced the idea of introducing his methods to the United States Government. If they are used according to my instructions, they will be of great benefit to the Government.

This is a day of progression. Men are respected in proportion to their education, intelligence and usefulness; governments are respected for the soundness of their constitutions and intelligence of their laws and enforcement of the same, and the size and efficiency of their armies. The soldier who receives a careful training and useful education in military science and conducts himself properly, is respected, trusted and promoted. I contend that the soldier's education has not been completed until he has a thorough knowledge of the great art of horse-training and educating his horse, for he should be to him a daily companion. By a thorough knowledge of the great art, to which I allude, he is capable of judging the most intelligent, hardy and useful horse for his department of the service. The more useful the animal to his master, the more companionable and highly appreciated. The better the horse, the better the master. I have written this book from an experience of over seventeen years in the study of the training and education of the horse, and if these instructions are put to practical use, they will improve the military service in all departments in which horses are used.

My one aim and object is to get my methods of training the noble and intelligent horse before the people of this country, for I feel by so doing lasting good will be done the poor, unappreciated dumb brute; and though he can never know the good I shall have done him, his master will be able to appreciate the benefit.

Permit me to state briefly that I have traveled all over the United States, and have given public exhibitions in all of the principal cities and towns. I have handled over twenty thousand of the most vicious kickers, balkers, strikers, plungers, biters, bolters, shyers, and horses possessing all other vicious habits

known, but I have yet to find the horse I could not by my methods conquer, subdue and make docile in a short time, yet I have not injured one horse, nor is it necessary for me to be cruel, for the method used is simple.

It is with a feeling of pride—for I have earned my success by honesty of purpose, straightforward action, hard labor and close study—that I refer to crowded houses wherever I have been and audiences made up of the very best class of citizens, which is the best evidence that my labors have been appreciated and my methods a success.

In giving out this work I have tried to make it simple and as plain as possible, as I do not approve of a large book filled up with trash. All the scientific points of horsemanship are laid down here in common-sense talk. They can be readily understood by a boy of twelve. It has cost a large sum of money to engrave the different cuts and to make them plain, so they can be quickly understood by the reader.

Hoping and fully believing that where occasion requires all persons who may chance to peruse this work, will fully carry out the instructions laid down here for their benefit, which has cost me a lifetime of mental aad physical labor to perfect and that both horse and man will be benefited thereby, I am

Respectfully, your obedient servant,

OSCAR R. GLEASON.

TABLE OF CONTENTS.

PAGE

INTRODUCTION, ... 5

HISTORY OF THE HORSE, ... 9

INTELLIGENCE OF THE HORSE, ... 15

EDUCATING THE HORSE.—New method of haltering a wild or vicious colt.—Tc educate the horse to the words "come here"; how to get a horse up that throws himself; to educate a colt to drive before being harnessed; to educate a colt to move his body when he moves his head; instructions to ride the colt; to prevent a horse from kicking and pawing in the stall; to educate a horse not to get cast in the stall; to catch a horse easily; to prevent rearing under saddle or before a carriage; to prevent cribbing; to prevent kicking when the lines get under the horse's tail; bits used in educating bad horses; to educate a horse not to be afraid of objects when driving; first lesson with the umbrella; horses bad to bridle; to make a "single foot" horse trot "square"; to educate a pacer to trot; to educate a horse to trot; to educate a horse not to kick in the shafts; to infuse life into a lazy horse; to start a balky horse, ... 24

PAGE

TEACHING HORSES TRICKS.—To take a handkerchief from his side; to kiss a boy; to bore for oil; to make a horse walk up; to sit down; to drive a boy off a pedestal; to shake hands; to make a bow; to walk on his knees; to be vicious; to laugh; to push a vehicle; to "go lame"; to walk on his hind feet; to say "no"; to mount a pedestal; to waltz, ... 46

HOW TO BUY.—Get correct information; the buyer; proportions of the horse; the Cleveland bay for profit; the light harness horse; saddle horses of all gaits; the high-bred hunting horse; racing horses; what the racer should be; how to detect vices and defects; other faults and imperfections; buying cheap horses; color in relation to value; action; fast walking horses; what a horse should be; form for purchasing, ... 54

HOW TO FEED, WATER, AND GROOM.—Laying the foundation; what to feed; when to feed; watering; kinds and quantities of food; how to prepare the food; mashes, gruel, and hay tea; the value of hay and straw; feeding grain; stable care and training; the time to clean; care of the feet; blanketing when necessary; proper tools for the stable, ... 75

BREEDING AND RAISING HORSES.—Importance of the subject; the best stock the cheapest; hereditary tendencies and immaturity; principles of transmission; "in and in" and "cross breeding"; treatment of mare; how to know a mare is in foal; how to know time of foaling; "slinking" or abortion; how to raise colts; mules, ... 88

BREAKING AND TAMING WILD AND VICIOUS HORSES.—Nature of the horse; names and situations of external parts; questions and answers; handling and driving a colt; the working of the new Gleason bit; the stable; circulation of air; hay tea; how to make the Gleason surcingle; to accustom horses to objects when driving; you must educate your horse; bad biters; how to drive a horse up to an object that he is afraid of; all grades of balky horses; cleaning collars; harness and saddles; the celebrated "Gleason bridle"; answering ques-

tions; ladies' equestrianism; regulating and managing a government farm; shipping horses; special to the farmer; errors in feeding; feeding during a hard march or long drive; care when heated; in the spring, ... 104

METHODS FOR DETECTING UNSOUNDNESS.—How to examine a horse; kinds of unsoundness; treatment, ... 220

THE TEETH.—New method of telling age; the teeth and jaws at various ages; a poem, ... 224

HORSE-SHOEING DEPARTMENT.—Questions with valuable answers; shoes for over-reaching; corns; toe crack; the saddle horse's feet; the soaking tub; the turf horse's foot; perfect feet; packing and soaking horses feet; a few points, ... 241

DISEASES OF THE HORSE.—Causes of Diseases, 269; How to Observe Disease, The Principles of Disease, 270; The Pulse, 272; Breathing, Treatment of Disease, 273; How Diseases are Cured Without Medicine, 274; Nature, Symptoms, Cause and Treatment, ... 275

Abrasion, Abscess, Acari, Accidents, 276; Aconite, Alternatives, Amaurosis, Anæmia, Aneurism, Apoplexy, 277; Aphtha, Atrophy, . . 278

Back Sinlusis, Baldness, Belly Ache, Big Head, Bishoping, Bite of Mad Dog, 279; Bladder Disease, Bleeding, 280; Bloody Urine, Blood, Boils, Bots, Bowels, 282; Brain Diseases, Breaking Down, Breathing Short, Breeze Flies, Brittle Feet, Bronchi, 283; Bronchitis, 284; Bronchocele, Broken Knees, 285; Bruises of the Sole, Burns and Scalds, 286; Bursa Mucosa Enlarged, ... 287

Calculi, Cancer, Canine Rabies, Capped Elbow, 287; Chapped Hock, Carditis, Caries, 288; Castration, Cataract, Catarrh, Cautery, Cerebro-Spinal Meningitis, Chest Diseases, Chest Founder, Chilblains, Chill, 289; Choking, Chorea, Cold, 290; Cold Lotions, Colic, 291; Coma, Congestion of Lungs, Constipation, 293; Consumption, Contagion, 294;

PAGE

Contraction, Convalescence, Corns, Coryza Gangrenosa, Corrosive Sublimate, Cough, Counter-Irritants, Cow Hock, Cramp, 295; Cribbiting, Curb, 296; Curly Hocked, Cutaneous Diseases, Cutting, ... 297

Death, Debility, 297; Deformities, Denteropathia, Diabetes, 298; Diaphoretics, Diarrhœa, Diathesis, 299; Diet, Disinfectants, 300; Distemper, Diuretics, Dropsies, 302; Dysentery, ... 302

Ear Diseases, Ecchymosis, Eczema, Elephantiasis, Embrocation, Emetics, 303; Emphysema, Encysted Tumors, Encephaloid, Endermic, Enema, Ephemeral, Epidemic, Epizootic, Epilepsy, Epiphora, 304; Epsom Salts, Eruptions, Erysipelas, Exostosis, Eyes, ... 305

False Quarter, Farcy, 310; Fatty Tumor, Farrier, Fever, Fever in Feet, 313; Fibroma, Fistula, 314; Fistula in Foot, Fistulous Withers, Fits, 315; Flaxseed, Food, 316; Foot Diseases, 318; Founder, 325; Fractures, 326; Fracture of Hip or Pelvis, 328; Fungi, Frost Bites, . 329

Gangrene, Gastritis Mucosa, 330; Glanders, 332; Glass Eye, Gleet, Granulation, Gravel in Foot, 335; Grease, 336; Gripes, Grogginess, Grunter, 337; Gullet, Gunshot Wound, Gutta Sarena, ... 335

Heart, Heaves, 338; Heat, Hepatic Diseases, Hernia, Herpes, Hereditary Diseases, 339; Hide Bound, 340; Hip Joint Diseases, The Hock, 341; Hooks in the Eyes, Horse Fly, 342; Humanity to Animals, 343; Hydrothorax, Hydrocele, Hydronemia, Hydrophobia, 346; Hypertrophy, Hypodermic, Hysteria, ... 347

Indigestion, Infection, Inflammation, Influenza, 348; Injections, 349; Intestines, Itch, Interfering, ... 350

Jack Jaundice, Joint Diseases, 350; Jugular Vein, ... 351

Kidneys, 351; Knees Broken, Knee Joints, Knuckling, ... 352

Lameness, Laminitis, Lampas, Laryngitis, Leg, Lice, Ligaments, 353; Lipoma, Liver, 354; Loins, Loss of Appetite, Lumbago, Lungs, 356; Lymph, Lymphangitis, ... 359

PAGE

Madness, Mad Staggers, Maggots, Malignant, Malignant Epidemic, Mallenders, Mange, 360; Materia Medica, Megrims, Melanosis, Melanoid, Mesentery, Mesenterica, Metastasis, Moon Blindness, 361; Mortification, Moribund, Mouth, 362; Mucous Membrane, Mucus, Myalgia, 363

Narcotics, Nasal Gleet, Navicular Disease, Necrosis, Nephritis, Nervousness, 364; Neurotomy, Nose, Obesity, Œdema, 365; Œstromania, Omentum, Open Joints, Ophthalmia, Ossification, Osteology, Osteophorosis, Ostitis, Overreach, Ozena, ... 366

Palliatives, Paralysis, 366; Pathology, Patella, Pasterns, Pelvis, Pelvic Abscess, 368; Penis Hanging Out, Peristaltic, Peritonitis, 369; Periosteum, Phagenda, 370; Phlebitis, Phlegmasia Dolens, Phrenitis, Physiology, Physicing, Pleurisy, 371; Pleuro-Pneumonia, Pleurodynia, Pleuro-Pneumonia, Poisons, 372; Poll-evil, 373; Polypi, Predisposing Causes, 374; Prick of the Foot, Probang, Procidenta, Prognosis, Prophylactics, Proud Flesh, Prurigo, Pulse, Puncture, 375; Purgatives, Purpura, Pus, Putrefaction, 376; Putrid Fever, Pyemia, ... 377

Quack Medicines, Quinsey, Quitton, ... 377

Rabies, Rachitis, 377; Resolution, Respiration, Revulsion, Rheumatism, 378; Ring Bone, 380; Ring Worm, Roaring, Round Bone, Rowels, 381; Ruptures, ... 382

Saddle Galls, Sallenders, Saliva, Salivation, 385; Sand Cracks, Sanious Pus, Scalds, Scald Mouth, Scarlatina, Scratches, Schirrus, Scouring, Scrotum, Scurf, Secretion, 386; Sedatives, Serum, Sirous Abscess, Seton, Shivers, Shoeing of Sound Feet, 387; Shoulder Lameness, 388; Shoulder Joint Lameness, Side Bones, Sinus, Sitfasts, 390; Skeleton, Skin Diseases, 391; Slough, Soreness, Soundness, Spavin, 395; Specks on the Eye, Speedy Cut, Spleen Diseases, Splint, Sprains, 398; Staggers, 399; Stings, Stifle Joint Lameness, 401; Stomach Diseases, Stone in Bladder, Strangles, Stranguary, 402; Strangulation, Stringhalt, 403; Stumbling, Sunstroke, Suppuration, 404; Surfeit, Swelled Legs, Swellings, Sweenie, Sympathy, 405; Synovia, Synchronous, Systole, ... 406

PAGE

Tabanidoe, Tabes, Taipæ, Teeth, Tetanus, Tetter, Thick Wind, Thick Leg, Thiselo, Through Pin, Thread Worms, Throat Diseases, Thrush, Thrombus, Thumps, 406; Tongue, Tonics, Toxicology, Tracheotomy, Transfusion, Tread, Trepanning, Trismus, Tubercles, Tumors, 407; Tympanitis, Typhia, Typhoid, Typhosus, ... 409

Ulcers, 411; Urinary Calculi, Urine, ... 413

Varicose, Venesection, Ventilation, Vives, ... 413

Warts, Warranty, 413; Warbles, Water Farcy, Weeping Eye, Wens, Wheezing, Whirl Bone, Wind Galls, Wind Sucking, Worms, 414; Wounds, Wourali, ... 416

Yellows, Yellow Water, ... 416

LIST OF ILLUSTRATIONS.

PAGE

Prof. Oscar R. Gleason (Half-tone Portrait), ... Frontispiece

To Halter a Wild or Vicious Colt, ... 24

Educating a Colt to Move his Body when he Moves his Head, ... 28

To Prevent a Horse from Kicking or Pawing in the Stall, ... 31

To Prevent a Horse from Getting Cast in the Stall, ... 32

To Educate a Horse not to Kick when the Lines get Under his Tail, . . . 37

To Start a Balky Horse, ... 45

A Fine Stallion Showing Thorough Blood, ... 55

A Light Hunting Horse, ... 57

Proportions of the Horse, ... 58

A Heavy Hunting Horse, ... 63

The Nervous System of the Horse, ... 101

Skeleton of the Horse, ... 103

Names and Situations of External Parts, ... 105

Intelligent Driving Horses, ... 106

To Handle a Whip Over a Colt, ... 107

Training a Colt, ... 108

To Handle a Colt's Feet, ... 109

To Break a Colt to Ride 110

Gleason's Double Safety Ropes in Use, ... 112

Treatment for a Halter Puller, ... 115

Relative Measurements, ... 116

Handling a Colt's Hind Feet, ... 117

Gleason's Head Strap for Shoeing Vicious Horses, ... 117

Perfect Heads of Draft Horses, ... 118

PAGE
Gleason's Bridle Bit, ... 119
The Famous Bit, ... 121
The Horse with Overcheck, ... 122
The Horse in Natural Beauty without Check Rein, ... 123
Cruelly Tortured by High Checking, ... 124
Horses Properly Check-Reined, ... 125
The High Rack or Manger, ... 133
Horse Eating Food From the Ground, the Natural Position, ... 134
How to Make the Gleason Surcingle, ... 135
First Position Taken in Throwing a Horse, ... 137
Second Position Taken in Throwing a Horse, ... 138
Third Position Taken in Throwing a Horse, ... 139
Fourth Position Taken in Throwing a Horse, ... 140
Proper Halter to be Used in Throwing a Horse, ... 141
Gleason's Double Safety Strap, ... 146
Starting a Balky Horse, ... 148
To Educate a Horse not to be afraid of Objects, ... 151
To Educate a Horse not to be Afraid of Steam, ... 152
To Break a Shier, ... 153
Gleason's Knee Pads and Double Safety Straps, ... 154
Horse with one Foot Raised by Double Safety Straps, ... 155
To Prevent Pawing in the Stall, ... 159
To Prevent Kicking in the Stall, ... 159
Whirling a Horse by his Tail, ... 160
A Horse that Switches his Tail, ... 161
Educating Horses not to Fear Fire Crackers, ... 162
Educating a Horse not to Fear Umbrellas and Paper, ... 163
A Vicious Kicker and Plunger, ... 164
A Last Resort for a Bad Kicker, ... 165
To Keep a Horse's Tongue in his Mouth, ... 165
Teaching a Horse to Stand to Fire, ... 166

PAGE
Prof. Gleason's Famous Revolver, ... 167
Leading Horses in Battle, ... 168
To Clean Collars, ... 169
Double Draw Check Rein, ... 170
Rig for Fence Jumpers, ... 171
To Prevent a Horse from Tearing his Blanket, ... 172
Grooming the Horse, ... 174
Gleason's Simple Riding Bridle, ... 176
A Gentleman's Road Horse, ... 177
A Good Business Horse, ... 177
Driving a Plunger in Double Harness, ... 179
Clipping, ... 180
The Celebrated "Gleason Bridle," 181
The Bridle in Use, ... 182
One Good Form for Using the Gleason Bridle, ... 183
The Gleason "Eureka" Bridle, ... 184
A Rope "Bonaparte" Bridle, ... 185
The Forward Action of the Bonaparte Bridle, ... 186
Gleason's Break Harness, ... 187
Gleason's Break Harness in Parts, ... 188
A Breaking Sulky, ... 189
The Single Foot Strap, ... 190
The Guy Line in Use, ... 191
Teaching a Horse to Pull in Harness, ... 192
Shooting Over the Horse's Back, ... 193
Throwing the Horse, ... 196
The Upper and Lower Jaws, ... 228
The Foal's Jaw at Birth, ... 229
The Mouth of a Colt Two Weeks Old, ... 230
The Mouth of a Colt Six Weeks Old, ... 230
The Front Teeth of a Colt at Nine Months, ... 231

PAGE
Jaw of a Colt at One Year, ... 231
Jaw of a Colt at Two Years, ... 232
A Colt's Mouth at Two Years, ... 232
A Colt's Mouth at Two and One-Half Years, ... 233
A Colt's Mouth at Three Years, ... 233
A Colt's Jaw at Three Years, ... 234
A Horse's Jaw at Four Years, ... 234
A Horse's Mouth at Four Years, ... 235
A Horse's Mouth at Four and One-Half Years, ... 235
The Mouth at Five Years, ... 236
The Mouth at Six Years, ... 236
The Mouth at Seven Years, ... 237
The Mouth at Eight Years, ... 237
The Mouth at Twenty Years, ... 238
The Mouth at Thirty Years, ... 238
Pulling a Horse's Teeth, ... 240
Shoes to Prevent Interfering and Overreaching, ... 244
A Foot Shod for Quarter Crack or Bad Corn, ... 246
A Foot Shod for Toe or Sand-Crack, ... 247
A Driving or Saddle Horse's Foot Properly Shod, ... 248
A Toe Tip, ... 249
Effects of the Soaking Tub, ... 250
A Foot After a Long Campaign on the Turf, ... 252
Gleason's 14-Ounce Shoe, ... 253
A Perfect Foot, ... 255
A Foot Perfectly Shod, ... 256
Moistening the Cornet of the Foot, ... 260
A Toe-Weight Shoe, ... 262
Non-Paddling Shoe, ... 262
A Foot Ready for the Shoe, ... 263
Front View of Scoop-Toe Shoe, ... 263

PAGE
A Hind Foot Shoe for Rolling Motion, ... 263
Side-Weight Shoe for Hind Foot, ... 263
The Charlier Tip, ... 264
Right and Wrong Fitting, ... 264
Sound and Contracted Feet, ... 265
Nail Driving, ... 265
Quarter-Crack and Remedies, ... 266
Foundered Feet, ... 267
Ring Bone and Navicular Disease, ... 268
A Sling in Use, ... 328
Position of Heart and Diaphragm, ... 338
Position of the Left Lung, ... 356

History of the Horse.

From the earliest ages this noble animal has been the friend and companion of man. Prized for his beauty, loved for his docility, and valued for his strength, he has ever been regarded as the highest in value and importance of all domesticated animals. In the remotest ages, as far back as authentic history discloses anything of the life and pursuits of man, we find that the horse occupied a prominent position in his service. Painters have pictured on their canvass the majesty and grace of the spirited animal. Poets have celebrated his strength and beauty in their verses, and even inspired writers have introduced amongst their most glowing descriptions the horsemen and chariots which formed a chief feature in the pomp and magnificence of those early days.

In the most ancient hieroglyphics we find him present, and always so represented as to show that, even in the remote antiquity from which they date, he had been brought into complete and serviceable subjection. In the oldest Egyptian paintings the horse is seen only in the war chariot, and in the descriptions of the siege of Troy only the Charioteer appears, from which it has been supposed that the first horses used by the Greeks were too small to be conveniently ridden. But in the lately-discovered paintings in the palace of Nimrod, at Nineveh, disinterred by Layard, and supposed to be more than three thousand years old, horsemen are exhibited both in the chase and in war.

But further back than even those distant times, in the ages

where authentic history merges into the shadowy light, amidst which myth and fable mingle with the real, we find this noble animal figuring, but then exalted into a semi-human sphere. The Centaurs, who inhabited the passes of Mts. Pelion and Ossa, and the great plains of Thessaly, in Upper Greece, were probably a race resembling in many respects the Tartars of this age, and are supposed to have been the first who brought the horse into subjection to man. They were fabled as being half horse and half man. They are represented as perfect horses in all respects below and behind the withers and the chest; there, at the insertion of the neck, began human a body, the hip-joints articulating into the shoulders of the lower animal, and the abdomen of the man passing gradually into the chest of the horse. Above this the human form was perfect, with the erect bearing, chest, shoulders, arms, neck and head of a complete man. They were reputed to be possessed of extraordinary mental as well as physical powers, and to be as superior to ordinary men in wisdom and art as they were in fleetness and strength. They were evidently a tribe of horsemen whom the ignorance and superstition of that early period elevated into a superior race, in the supposition that the horse and man were united in one. Everything points to them as being the first who succeeded in breaking and using the horse.

Coming down to the times of authenic history, we find the Parthians to have been among the most renowned for their skill in training and using the horse. Their feats of horsemanship in battle showed a complete mastery of the animal, which in their battles with the Romans, rendered them so efficient as mounted archers.

Frequently, in ancient paintings, the mounted steed is represented without a bridle, and the Numidian cavalry are said to have guided and restrained their horses without it; an assertion by no means improbable, as a Comanche Indian of the present day will frequently jump on the back of a wild and untrained horse, and guide him by the simple expedient of covering with his hand the eye of the animal on the side opposite to that in which he wishes to direct it.

In modern times the horse has been so closely associated with man that he appears in every phase of society, and it is only when his numerous uses are considered that we realize how greatly the human family is his debtor. The knight of the days of chivalry would have been impossible but for the trusty steed which bore him so gallantly in the lists at the tourney, and amidst the deadlier strife of the battle. Before the plow and at the harrow he has multiplied the productions of the earth a hundred-fold beyond what human strength alone could have secured. Laboring before the loaded wagon, he has been a steady drudge for man. Harnessed to the elegant equipage or the humbler "cab," or bearing along the dusty highway the stage-coach he has performed a thousand offices indispensable to human comfort and advancement. It is not too much to claim for him that civilization itself would have been shorn of something of its present fair proportions but for the valuable services rendered by this noble animal.

Yet, with all his acknowledged value, the horse has been too frequently the victim of neglect and cruelty; often ill-fed, poorly sheltered, and harshly treated, till, in many cases, the innate nobleness of his nature has been obscured by vicious habits, contracted through the mismanagement or abuse to which he has been subjected, and perpetuated by ignorance and prejudice. Naturally, the horse is usually gentle and confiding; he is quick to perceive, and possesses an excellent memory, which qualities render him capable of being educated easily, and to an extent far greater than is generally supposed. Added to this, he is capable of deep and lasting attachment.

What the horse may have been in his natural state is not known, as none at present exist in that condition. The horses which at the present day are found in a wild state in Northern Asia and America, are known to be the descendants of individuals formerly domesticated. On the prairies of the West, the pampas of South America, and the plains of Tartary, they live in troops, roaming at large, without fixed place of abode, seeking the richest pasturages by day, and resting at night in dry and sheltered situations; these large troops, which have lived in-

dependently for many generations, entirely exempt from the influence of man, probably afford a tolerably correct idea of what the primeval animal was. They are generally smaller, yet stronger, than the domesticated animal, with rougher coats, stronger limbs, and larger heads. Even when adult, the wild horse is easily domesticated, and may be broken to any use without great difficulty, thus proving the natural gentleness and docility of his nature. They are captured by the lasso, bitted, mounted, and broken within an hour by the daring and skillful Gauchos.

The Arabians, long renowned for their attachment to the horse, early showed the extent to which intelligent training could develop his finer qualities, and render him the most docile and obedient of animals. Something in that country or its climate is especially suited to the development of the horse, and, although introduced there long after his domestication in other eastern countries, he rapidly attained a degree of excellence which surpassed all others, until the horses of Arabia and the adjacent portions of Asia and Africa became the most celebrated for speed, courage, spirit, intelligence and docility of any of the equine race. Small in size, he has a beautiful, lean, bony head, with a very broad forehead, a tapering muzzle, and large, well-opened nostrils; his mane is very long, thin and silky. It is from the Arabian horse, crossed with the Barb, that the best stock of England and America has sprung. Although much of the superiority of these horses is attributable to peculiarly favorable conditions of the country where they originated, yet many of their excellent qualities may be traced to kindness and intelligent training by which those qualities were first developed, and through which they have been transmitted until they have become characteristics of the race.

The Arabian understands the value of his horse, appreciates the nobility of his nature, and treats him accordingly. They kiss and caress them; they adorn them with jewels, and amulets formed out of sentences of the Koran, as a preservative against evil and accidents. "In short," says a modern author, "they treat them almost like rational beings, which are ready to sac-

rifice their lives for their master's benefit." In the desert he is the familiar comrade, tentmate and playmate of his master, as docile and intelligent as a dog. Rev. V. Monro elates an anecdote of an Arab, "the net value of whose dress and accoutrements might be calculated at something under seventeen pence half-penny," who refused all offers made to purchase a beautiful mare on which he rode, declaring that he loved the animal better than his own life. The French author, Dr. St. Pierre, quotes a remarkable instance of the attachment an Arabian feels for his horse: "The whole stock of a poor Arabian of the desert consisted of a most beautiful mare. The French Consul at Said offered to purchase her, with an intention of sending her to his master, Louis XIV. The Arab, pressed by want, hesitated for a long time, but at length consented, on condition of receiving a very considerable sum, which he named. The Consul, not daring, without instructions, to give so high a prize, wrote to Versailles for permission to close the bargain on the terms stipulated. Louis XIV gave orders to pay the money. The Consul immediately sent notice to the Arab, who soon after made his appearance mounted on his magnificent courser, and the gold he had demanded was paid down to him. The Arab, covered with a miserable rag, dismounted and looked at the money; then turning his eyes to the mare, he thus accosted her: 'To whom am I going to yield thee up? To Europeans, who will tie thee close, who will beat thee, who will render thee miserable. Return with me, my beauty, my darling, my jewel, and rejoice the hearts of my children!' As he pronounced these words, he sprung upon her back and scampered off towards the desert."

It is not surprising that such a high appreciation of and fondness for this noble animal, united to an intelligent training, has resulted in the production of a race of horses unrivaled in excellence. But among Europeans and Americans the treatment of the horse has been usually so harsh, and the mode of training so deficient in intelligence, as to greatly lessen his value, even where a brutal ignorance has not brought into activity every vice latent in his nature. Of the numerous faults ascribed to the horse a very small portion are chargeable to his

natural disposition, the remainder being the direct result of vicious training, or rather of the absence of training, and the substitution of something which, under that name, first produces and then fosters the faults for which the animal is punished; while often the punishment is ineffectual, because the animal has no conception of why it is made to suffer.

Education is as essential to the horse as it is to man, and in each case it must proceed on the same general principles. The first grand lesson to be learned by each is that of subjection to authority; the child is taught that by his parent; the horse must learn it from his trainer. But, after that, knowledge is required, and this must be imparted by methods adapted to the nature that is to be cultivated. The object of this book is to show in what that knowledge consists and how it may be communicated to the horse, and so impressed upon his memory that it will never be forgotten. The methods of breaking and training the horse, herein taught, will, if early applied, prevent his acquring any of the faults which, under former systems, have proved so numerous; while the treatment recommended for correcting bad habits, already formed, will prove effectual in even the most stubborn cases, and with the most intractable dispositions. The reader will not be asked to accept any unproved theory, but will be instructed in a system which, although subjected to the severest tests, has never failed to accomplish the desired results. That it may require patience and self-control on the part of the instructor cannot be denied; but so does the instruction of a child, the breaking of a dog to the gun, or even the training of a vine to its trellis; but the satisfactory results which are certain to be attained will furnish an ample reward.

Intelligence of the Horse.

In discussing the intelligence of animals I am aware that many persons, at the outset, would question the propriety of the term. Man has so long arrogated the exclusive possession of mind, or at least of a mind capable of rational reflection, that he is reluctant to concede the fact of its possession by the lower orders of animal life. Those acts which, in the brute creation, seem to proceed from the action of powers analagous to human intelligence, it has been usual to ascribe to an irrational faculty called instinct; a power invariable and despotic in its action, but in no degree the result of reflection; some metaphysicians even going so far as to assert that the action of animals is purely automatic, the difference in this respect between them and the automaton moved by wires and springs being that the former possess a consciousness of their acts, while the latter does not. Facts in myriads, exist which challenge the correctness of such a theory, while in almost number they assert the existence, at least in its embryonic state, of a mind capable of thought, and, to a limited degree, of reflection and comparision, with the ability to deduce conclusions from the facts which it considers.

This intelligence varies greatly in the different animal races, in some species being barely perceptible, while in others it is too conspicuous to be ignored; and between individuals of the same species there exists a difference so marked that, in the more favored ones which come under our observation, the in-

telligence is so clear as to almost startle us by the feeling that behind the full, liquid eye of the horse, or prompting the fixed gaze bent on us by our trusty canine companion, there may be a mind kindred to our own and which lacks only the power of articulate expression to respond to our thoughts by answering sentiments. It is the absence of the power of speech in animals which leaves us in doubt as to the exact degree of intelligence possessed by them. If, when the farmer says, "Carlo! the cows are in the corn—turn them out!" the dog should turn his head and reply, "Yes, sir, I'll have them out in a moment!" there could be no doubt of the intelligent interchange of thought. But the fact of his *doing* that which in the supposed case he would express, proves as conclusively his comprehension of the command and his purpose to obey.

The horse or dog, however fully he may understand the directions he reeeives, can give no other response than by his acts, and to words of praise or censure he can reply only by signs; these are clearly understood by us and show that our meaning is comprehended by the animal, proving a real interchange of thought. A popular author has said. "A dog may bark, a horse may neigh, but it not by these sounds that they express the delicate shades of ever-varying emotion; it is by a thousand varieties of gesture which few of us indeed can analyze but which all clearly understand. A dog converses with his master by means of his eyes and his ears and his tail, nay by every muscle of his body."

To test the existence and extent of intelligence we must determine the capacity for comprehending thought. We recognize this capacity in a child long before it can express itself in language. Its dawn is seen as the infant learns to associate certain articulate sounds with certain persons, acts, or things, and to distinguish the meaning of tones which encourage, restrain or chide it. It is only after a twelve-month or more of constant tuition, lovingly and intelligently given, that our children begin to express in language the thoughts which are awakened by our words and acts, yet the comprehension is as evident and the response as apparent before that time, for the whole mental pro-

cess was perfect long before. The same tests which prove the intelligence of the child demonstrate its existence in animals. There is a similar power of comprehending the wishes expressed, by associating certain articulate sounds with certain acts required, as well as an equal recognition of the tones of voice by which approval, reproof or anger are made known; but, lacking the organs of speech, they are debarred, and forever must be, from any except the most limited *interchange* of thought. For this reason, attentive study is needed in ascertaining the extent to which they comprehend and respond to the intelligence which addresses them.

In the case of wild or undomesticated animals there is little opportunity for investigating this interesting subject. We see the beaver build his dam, and we understand the object so admirably attained by his work. We know that the elephant, to be taken in the pitfall, must see on the earth that covers it the foot-prints of one of his fellows, and we surmise the process of reasoning by which he concludes that he is safe in venturing where another of his kind has trodden. We learn that the ostrich which in torrid regions trusts to the heat of the sand for the incubation of her eggs, will in a more temperate latitude supply the heat which would else be lacking by setting on her eggs during the cooler nights; but in none of these, nor in a score of other cases, in which there seems a rational foresight, can we determine how far the acts result from intelligent reflection. In domesticated animals, and especially in such as are trained for the service of man, the action of intelligence may be clearly traced; it is demonstrated by the ease and certainty with which they can be educated; it is seen in the readiness with which many receive and act upon ideas communicated to them; and in a multitude of instances the mental process is evident by which they have, independently, reached conclusions rationally deduced from facts of their previous knowledge.

Mr. J. Hopes relates a circumstance of a terrier who had been temporarily left by his master in the care of a Mrs. Lanford at St. Albans. This lady owned a large house-dog which, disliking the presence of the stranger, quarreled with him, biting and

severely wounding him, after which the terrier disappeared; but in a few days he returned again, accompanied by a powerful mastiff, when both together fell upon the original assailant, whom they nearly killed. The mastiff was the watch dog at his master's house, more than a day's journey distant, and had been brought by the terrier for the sole purpose of avenging the injury he had received, after which they left in company and proceeded together to their home. Here was displayed a power of combining ideas and of communicating them to one of his kind, when the two acted on the plan they had preconcerted.

In a work just issued, an anecdote is related of a dog who had lost his master and afterwards became old and blind, passing his time sadly in the same corner, which he rarely quitted. "One day came a step like that of his lost master, and he suddenly left his place. The man who had just entered wore ribbed stockings as his master had done. The old dog had lost his scent and referred at once to his stockings that he remembered, rubbing his face against them. Believing that his master had returned, he gave way to the most extravagant delight. The man spoke; the momentary illusion was dispelled, the dog went sadly back to his place, and lay wearily down." Here was a double process of reasoning and even a balancing of testimony with a decision that the negative evidence of the strange voice outweighed the affirmative proof in the step and the stockings.

Much evidence favors the belief that animals not only become familiar with the words habitually addressed to them, but that they, to a certain extent, understand our language. A dog, belonging to a friend of the writer, would slink from the room with every indication of shame if a fault of which he had been guilty was spoken of in his presence. The author of "Chapters on Animals" describes a dog in his possession which clearly distinguishes between those visitors at the house who are favorites with his master and those whom he dislikes, and adds: "I know not how he discovers these differences in my feelings, except it be by overhearing remarks when the guests are gone."

The elephant, though one of the clumsiest of animals, exhibits marks of high intelligence, and evidently understands the lan-

guage in which he is addressed. He can be stimulated to unusual exertions by the promise of a reward. "I have seen," says a French writer, "two occupied in beating down a wall which their keepers had desired them to do and encouraged them by a promise of fruits and brandy." They were left alone and continued at the work, stimulated by the promised reward, until it was accomplished. "When a reward is promised to an elephant," says the same author, "it is dangerous to disappoint him, as he never fails to revenge the insult." Nothing of this could occur without an understanding of the language.

In India they were formerly employed to launch vessels, and it is related that one being directed to force a large ship into the water, the task proved beyond his strength; whereupon his master, in a sarcastic tone, ordered the keeper to take away this lazy beast and bring another; the poor animal, as if stung by shame, instantly repeated his efforts, fractured his skull and died on the spot.

It may be said that the tones of the voice rather than the words are what the animal understands, yet a dog knows his name however spoken, and a horse understands a whole vocabulary of orders. But the intelligence which comprehends the meaning of a tone, is not less than that required to understand a word or sentence. Mr. Hamerton, the artist, widely known as a lover of animals, mentions a favorite dog which met an untimely death by drowning, and in his lament over his lost pet, says; "He was a dog of rare gifts, exceptionally intelligent, who would obey a look where another needed an order. He would sit studying his master's face and had become from careful observation so acute a physiognomist that he read whatever thoughts of mine had any concern for him."

The shrewd intelligence of our countrymen is nowhere more clearly seen than in the keen bargains the New Englander is famous for driving. But our domestic animals make bargains with us and sometimes resolutely keep us to them. On this point a pleasant writer relates an anecdote of a favorite mare who was so difficult to catch in the pasture as to often require six men to effect it; "but," says he, "I carried corn to her for

a long time, without trying to take her, leaving her the corn on the ground. Next, I induced her to eat the corn while I held it still leaving her free. Finally I persuaded her to follow me, and now she will come trotting half a mile at my whistle, leaping ditches, fording brooks, in the darkness and rain, or in impenetrable fog. She follows me like a dog to the stable and I administer the corn there. But it is a bargain; she knowingly sells her liberty for the corn. The experiment of reducing the reward to test her behavior having been tried, she ceased to obey the whistle and resumed her former habits; but the full and due quantity having been restored, she yielded her liberty again without resistance, and since then she is not to be cheated."

A horse which is regularly used for attending church, will, from its own observation, learn to recognize the Sabbath and understand the meaning of the church bells. The following interesting illustration of this fact is authenticated by the Hartford *Post*:

"A pair of horses that had been used during the week in team-work to Springfield, on Sunday were harnessed and driven to the door unhitched, and, the family being rather tardy that morning, as soon as the second bell began to ring the horses started off alone, and with their usual Sunday motion went up in front of the church, when, after waiting the usual time, they quietly went around under the horse-shed."

Here the horses plainly understood the distinction between that day and the six previous ones when they had been driven to Springfield, else they would have gone, after starting, to where they had been going through the week; they also evidently understood that at the ringing of the second bell it was time to start for church. The gentleman who communicated the foregoing adds an instance which occurred in his own family:

"The father of the writer, owing to increasing infirmities, rode alone to meeting, half a mile, driving an old grey mare twenty years old, and had not failed of going every Sabbath for some years. On one occasion, owing to a fall, he could not go to meeting, and on Sunday morning, as the time for meeting approached, the horse, in a lot near the house, manifested great

uneasiness, and when the second bell struck she leaped over the fence and trotted quietly to church, stopping at her usual hitching-place, under an old elm tree, until the close of the service, when the faithful animal returned safely to the house."

When we remember that such exhibitions of intelligence occur continually where the animals have received no training on the subjects to which they relate, it seems certain that they are the result of a mental process which strongly resembles thought, and we would expect, from patient culture, displays of intelligence greatly in advance of those ordinarily taking place. Such an expectation is justified by the results which have followed training when directed to this end. In a paper entitled "Canine Guests," Philip Gilbert Hamerton gives an account of the trained dogs of M. du Rouil which, but for the unimpeachable veracity of the writer, would be almost incredible. M. du Rouil began to educate his first dog out of curiosity to see the effect of the sort of education which seemed to him best adapted for establishing a close understanding between the human and canine minds; the results astonished himself and were so gratifying that he subsequently educated two others on the same principles. Two of these dogs, "Blanche" and "Lyda," with their master, were guests of Mr. Hamerton, and the intelligence they exhibited, and which he describes, is, by his own admission, "incredible," yet may be so only because of our ignorance of the nature and extent of the mental powers belonging to the animal creation. Among the many feats performed by them were the spelling of words by lettered cards; the correction of words purposely misspelled; the working out of simple problems in arithmetic and the playing of cards and dominoes. Of the latter, Mr. Hamerton says: "Both the dogs played a game at dominoes. This was managed as follows: the dogs sat on chairs opposite each other, and took up the domino that was wanted; but the master placed it in its position and kept announcing the state of the game. Their distress when they could not go on without drawing from the bank was announced in piteous whines, and amused us all exceedingly. Lyda was the loser, and precipitately retreated to hide herself with an evident consciousness of defeat."

An incident occurred in the course of the evening which showed some understanding of language. A little girl wanted Blanche to come to her, but the dog kept away, on which M. du Rouil said, "Blanche, go salute the little girl!" She immediately went up to the child and made a formal obeisance.

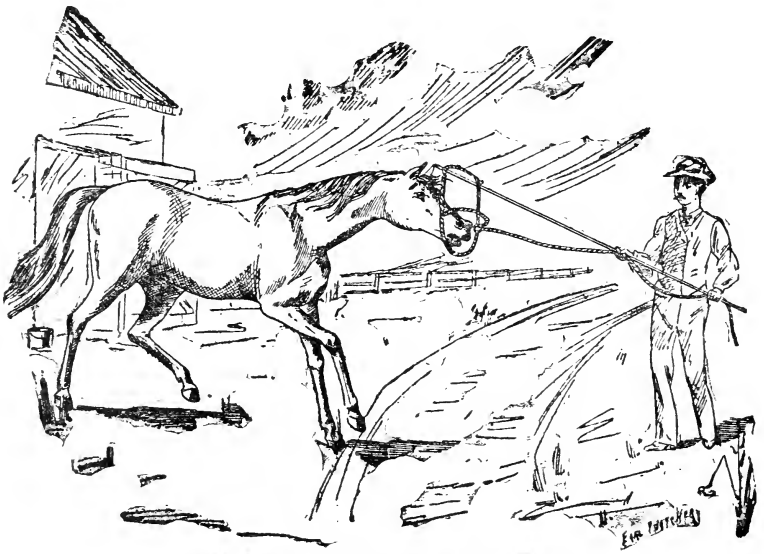
The owner of Blanche stated that he was going home one night accompanied by the dog and on his way saw a man who was searching for some object that he had lost. "What are you seeking?" he asked. The man answered that he had lost 280 francs. "Possibly my dog may be able to find them for you; have you any money left? If you have, show her a piece of gold." It was done and the dog directed to search. She at once set out and soon returned, bringing first one piece of gold, then another, and then a bank-note, till the whole sum that had been lost was regained.

M. du Rouil said that Blanche really knew all the letters and the playing-cards by their names, and Lyda really knew all the figures. In addition to this Blanche had studied about one hundred and fifty words in different languages, something like twenty in each language. So it was with Lyda and the figures. She knew each one by its name, and would bring the one called for. In describing the earlier stages of training through which these dogs had passed, their owner said the first thing was to make the dog fetch an object, the next to make him discriminate between one of two very different objects placed together, and bring one or the other as it was mentioned by its name. In beginning the alphabet he put two most dissimilar letters side by side to begin with, such as an O and an I, avoiding the confusion of similar ones, such as O and Q or B and R. Gradually the dog became observant enough to discriminate between letters in which the difference was not so marked. M. du Rouil said he had found the greatest difficulty in teaching Blanche to distinguish between the knaves and kings in playing-cards, but that she learned the aces very promptly. When he was asked what after his ten years' experience, was his opinion of the intelligence of dogs, he answered, with great emphasis, "it is infinite."

In subsequent pages I shall set forth my method of educating horses for common usefulness and to perform a variety of feats, and from the ideas thus imparted the reader may multiply the number of tricks to any desired limit.

Educating the Horse.

New Method of Haltering a Vicious or Wild Colt.



New Method of Haltering a Vicious Colt.

Having directed my attention for many years to compiling a system of educating the horse, and traveling over twenty-five States of the Union, together with nearly all the cities and towns in the Provinces of Ontario and Quebec, during the past eight years, it is highly improbable that few, if any, men are

better prepared to impart instruction or to give direction with regard to the management of the horse than myself.

I deem it advisable to give special directions to those who raise colts, not only as to their manner of treatment and education, but knowing full well the difficulty sometimes attending the first haltering of wild colts, I have prepared the accompanying plate as illustrative of my method, and now proceed to give directions which, if strictly followed will insure success.

Take a pole about ten feet long; drive a nail near the end, then drive another about fifteen inches from it; now take a rope halter, and hang the part that goes on the top of the head on these nails; then enlarge the nose-piece, by means of the slip-noose, sufficiently to allow it to slip on easily, observing to hold the halter stale in your hands with the pole; approach your colt with great care, and allow him to smell of the halter, and, in a few minutes, he will yield to your advances, and allow you to place the halter on him without much difficulty. Make the shank or stale of the halter about three times the ordinary length, for, as soon as he finds himself caught, he will use his best exertions to get away from you.

To Educate the Horse to the Words "Come Here."

Place a Comanche bridle on the horse, made as follows: take a small cord about sixteen feet long, tie the end around the neck firmly, so that it cannot slip; then double your cord, placing it under the neck, from the shoulder to the mouth; step back at the side of your horse, and say "Come here;" at the same time give him a sharp jerk, and he will swing around to you; when he comes, caress him with your hand on the shoulder; now repeat the same on opposite side, remembering to caress each time; do this four or five times, and you will find that your horse will obey and fully understand the words "come here." Always speak the words with a distinct and commanding tone of voice.

I desire that the reader may understand that obedience in the horse is accomplished by pain; so, when you inflict pain, ac-

companied by a word the horse is made to understand that the words mean pain; and rather than suffer pain, he cheerfully obeys the word.

Persons have practiced the foregoing idea and succeeded in accomplishing their purpose and have, no doubt, been highly gratified that their horse was so intelligent, yielding obedience to their efforts in a very short time; now had the owner known that a foundation for a complete education was properly laid how easily could he have built a superstructure thereon that would have been permanent and beneficial during the life of the animal. Men are often conceited and think that because they have experienced no difficulty in the past in breaking and handling their horses, therefore all will be sunshine in the future. A careful perusal of this work will supplant their conceit as they gain the knowledge of a practical system of properly educating the horse.

How to Get a Horse Up that Throws Himself.

Animals are often sulky, and quickly acquire the habit of lying down. Balky horses, when urged to go, will lie down and refuse to get up, and an ox will sometimes lie down in the furrow when before the plough. When the habit is thoroughly settled, it becomes very annoying to the owner or driver, who often resorts to severe means, but fails to accomplish the end desired; therefore, to prevent violence and ill-treatment, I give the easy and simple remedy subjoined, which, when adopted, will be found to be practical and never-failing.

Raise the animal's head up, as illustrated in the foregoing plate, and pour into his nostril a small quanity of water, not to exceed a pint, from a pitcher or cup, and you will be amused by the pleasing result: the animal will rise to his feet as quickly as it is possible for him to do so; he has the same sensation as if he were drowning, and will extricate himself with all speed.

Simple as is this expedient, it is yet unfailing in its efficacy; and that which most commends it to the acceptance of kind-hearted men is the absence of all cruelty in its application. No pain is caused, but the unusual sensation, together with the

necessity for air on the part of the horse, banishes his former feeling of sulkiness or anger and he yields to the almost irresistible impulse to spring to his feet and free his nostrils of the water.

If any one who has never applied this remedy should doubt its power, he only needs to try the experiment in a mild way on himself, when he will realize its power upon the horse.

I believe it would be impossible to devise another method so free from pain, so harmless to the horse, and yet so thoroughly efficacious as is the one here given.

To Educate a Colt to Drive before being Harnessed.

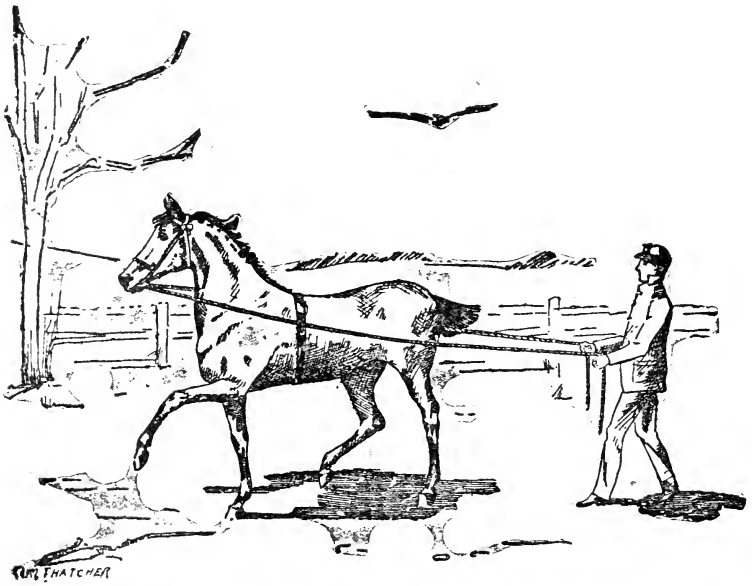
Place on him the Bonaparte bridle, as shown in engraving, with your cord in the left hand and whip in the right; the cord referred to should be about eighteen feet long; now drive him around a circle to the right about fifteen minutes; then drive him to the left about the same time. You have now educated your colt to drive, and may with safety put on your harness, observing to put the reins through the shaft tugs at his side; then commence driving him carefully for some fifteen minutes on a walk, turning him to the right and left as before directed. Do not use the whip more than sufficient to give him a knowledge of its use. Never drive a colt without blinders. It is better to first hitch him to a sulky or a cart, and do not put on breechings, but allow the cross-bar frequently to come against his heels, so that he may never be afraid, or learn to kick. Never forget, when your colt is obedient, to stop him, and walk up to and caress him.

I am unwilling to pass on to another article without more fully impressing on the minds of those who raise or break colts the necessity of kind and careful usage in educating their animals. Never approach your colt quickly. Never pull the halter or bridle off quickly. Always handle the colt's ears with great care. Never punish him on the body with anything but a whip, and with it as seldom as possible, as many colts become sulky and show signs of balking when severely whipped. It is better that you should give your colt two or three lessons each

day, as heretofore directed, at intervals of say two hours apart by this means you do not overtax his brain nor cause him to get weary. In this, as in many other cases, the wisest course is to "make haste slowly."

How to Educate a Colt to Move his Body when he Moves his Head.

Place on the bridle, then the harness; carry the reins through the shaft tug; take your position behind the horse (see engravings); now commence to drive, turning him around frequently, first to the right, then to the left, and he will quickly understand to move his body when he moves his head. By this means you are educating to the shafts, and educating not to be afraid of his heels, thus thoroughly breaking your horse at both sides and both ends.



Educating a Colt to Move his Body when he Moves his Head.

After your colt has been driven two or three times, as above described, educate him to obey the word "whoa:" let him walk along smartly, then speak plainly, with audible voice, and say "whoa;" at the same time pull on the reins with some force; when he stops, caress him; repeat this a few times, and, in the short space of fifteen minutes, you will have taught him the use of the word. Now your horse is educated to drive and stop at the word of command.

The next thing in order is to teach him to back. To accomplish this, grasp your reins firmly, aud with a determined effort; speak firmly, making use of the word "back," at the same time pulling with all your might; if he obeys the first time, step up and caress him; if not, increase the power by inviting one or more of your friends to assist on the reins, being fully determined to accomplish your purpose. As soon as he obeys, don't fail to caress him, and by this process you will educate your horse to the word, which he will never forget.

Your colt being educated, you may now hitch him up to a vehicle, observing to drive him very slow, only a walk, and after thus driving him a few times, you can with certainty say that you have a thoroughly educated horse, whose value will be greatly increased, compared with the old or any other system of breaking the colt. *Always* observing to drive your colt with blinders, only using the whip enough to let him know the use of it. Be kind to your animal, never using harsh means, and he will reward your kindness by implicit obedience.

Instructions to Ride the Colt.

Take a small cord, ten to twelve feet long, divide it in the centre; then place the centre back of the ears, cross it in the mouth, then bring both ends along the neck of the withers, and tie a knot, thus forming a powerful bridle, sufficient to ride the most vicious animal.

Sacred history contains the declaration that there is "the bridle for the horse, the whip for the ass, and the rod for the fool's back," and, while writing my book, I have often thought of the first portion of that quotation. The power of the bridle

in controlling the horse is really wonderful, and the new forms of powerful bridles given in this work enable the most timid rider to secure the mastery of the most powerful animal. The one described above is excellent, and can never fail to give satisfaction when it is used as directed.

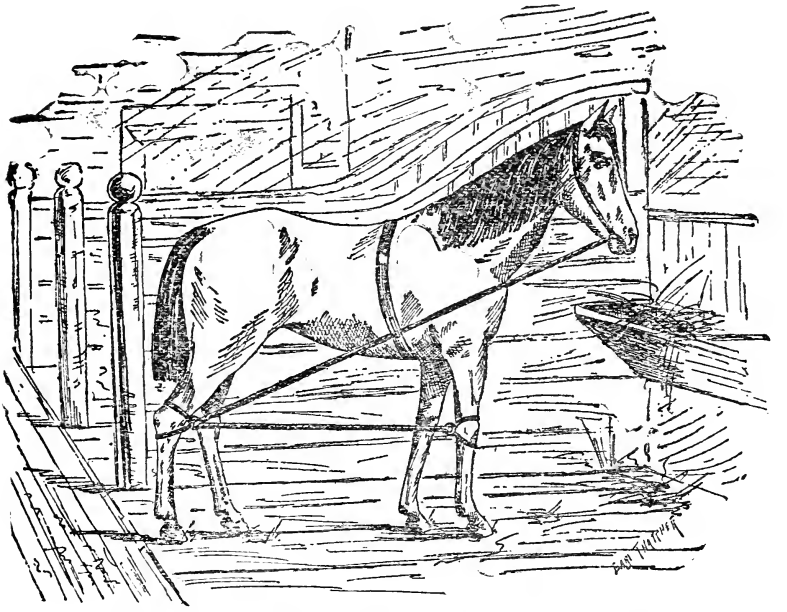
There is no exercise so invigorating and scarcely any so delightful as the manly one of riding the horse yet three-quarters of the pleasure of equestrianism depends on the early training of the horse for this delightful exercise. The rider who feels that he has beneath him an animal obedient to his slightest wish and which responds to a touch of the heel or the lightest pressure of the bit, moving to the lifting or the falling of the bridle, such a rider feels almost as though the horse on which he sits forms a portion of himself, and courses onward with a delightful sense of power and freedom. Nearly all of this excellence in a riding-horse depends on the way in which he has been educated while young. Faults then acquired may be corrected, it is true, in later years, yet is far more desirable that they should never have been formed, but in place thereof, the qualities secured which form the excellence of a horse.

I throw out these suggestions at this point, for I am now dealing with the early education of the colt; later in the book I shall have to speak more of faults to be corrected, and it is my wish to impress on my reader the great importance of the kind of education which the colt receives at his hands.

To Educate a Horse that Kicks or Paws in the Stall.

First make the Bonaparte bridle, as before directed; carry the cord through a surcingle, attached around the body, back to a ring in front of the hind-leg, to which are attached two straps, one above and one below the gambol joint of the leg he has the habit of kicking with; thus, when he kicks, he is punished in the act, and soon gives up the habit. *Pawing*—Continue the cord forward to a ring attached to two small straps above and below the knee-joint, as seen on engraving, observing, as above

directed, to attach the appliance to the leg he paws with, reversing the straps when required, which will give a horse the



To Prevent a Horse from Kicking or Pawing in the Stall.

knowledge that when he paws he punishes himself, and the reader will see, by this treatment, the habit speedily broken up.

The habit of kicking in the stall is one that is not only disagreeable to the owner of the horse addicted to it, but is often destructive and costly, as a horse viciously inclined to that habit will sometimes even splinter the boards of the stall, and with so simple and effective a method of correcting the bad habit it should never be tolerated for a single day, and the possessor of this book would be inexcusable should he suffer it to continue in any animal owned by him.

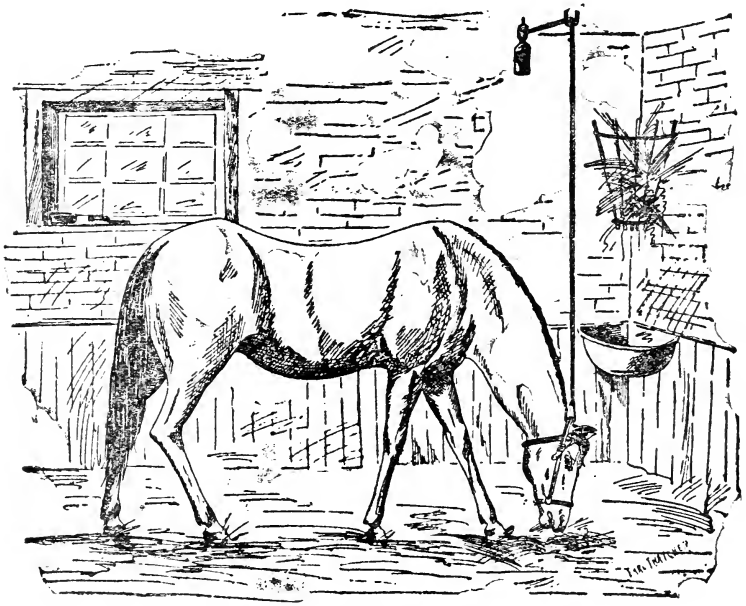
The habit of pawing in the stall, though not so vicious in its nature as that of kicking, is yet sufficiently troublesome and unpleasant to deserve a speedy correction, and the owner of a

horse addicted to even the lastnamed fault will be more than compensated for the slight trouble caused in its removal.

It may seem needless to repeat what has before been said, in substance, that the seemingly small faults of a horse are the ones which most frequently lessen and impair his usefulness, and that the removal of any one, however trifling, adds a money value to the horse more than sufficient to compensate for the time and trouble expended.

To Educate a Horse not to get Cast in the Stall.

Drive a staple in the ceiling over the manger at the side of the stall, then another in the ceiling in the center of the stall



To Educate a Horse Not to Get Cast in the Stall.

over the horse's head; pass a small cord through the staple at the side of the stall; tie a horseshoe, or the weight of a horse-

shoe, so that the cord will not draw through the staple; then put the cord through the staple in the centre of the stall, bring it down within two and a half feet of the floor, and cut it off, attaching a snap to the end; place a ring in the halter at the top of the head, in the center, as seen in engraving. Now, when his head raises up, the weight comes down; when his mouth is on the floor he can lie down with ease, but he cannot get the top of his head to the floor; and, if he cannot get the top of his head to the floor, he cannot roll; and, if he cannot roll, he cannot cast. This remedy is simple as it is certain and is always perfectly safe.

The habit of rolling in the stable is one often attended with fatal results, in addition to the anxiety experienced by the owner of the horse. Various means are resorted to in order to prevent the animal getting cast, and most of them are wide to the mark: and, in order to acquaint the reader with the variety of ways practiced, so that he may contrast the difference between others and mine, I have thought proper to write more explicitly on the subject.

A favorite idea with many is to tie the halter so short that the animal cannot get his mouth near the floor; this renders the horse uncomfortable, as he cannot lie down when he desires. Another is, hitching the halter-stale at the ceiling directly over the head of the animal, and allowing cord enough that he may get his mouth on the floor; this, too, is attended with bad results, for when he raises his head up their is sufficient slack in the rope so as to permit his getting his foot over the rope and becomes so entangled as to render his position dangerous.

To Educate a Horse that is bad to Catch.

Horses acquire this habit mainly from improperly turning them out; and, to illustrate, I will give the reader an example. First, the man or boy takes his horse to the bars or fence of the field, and lets only a portion of either down; he now takes off the bridle or halter, and, in order to make the horse jump over, hits him on the rump and shouts at him; thus the animal is made to fear the approach of man when loose; so that, with

this kind of training, it soon becomes difficult to catch, and requires education in order to counteract this bad habit.

Directions: Put on the Bonaparte bridle, and tie a knot at the mouth, so as to prevent it from slipping down to his teeth, when he might sever the cork; then carry it up to his mane over the shoulder; tie the mane together with a string; then pass the cord through the loop thus made with the mane, and carry the cord through a loop made in the tail by same means, and let your cord lay out behind from ten to fifty feet, as required. Now, when you want your horse, go carefully up behind him and take a firm hold of the cord, and say "Come here," at the same time pulling with all your might. By giving him three or four lessons of this kind, you may safely take off the cord and go into the field, standing about the same distance as when you last pulled on the cord, and repeat the words "come here; he will quickly obey your voice, and give you no more trouble in catching him.

When it is remembered how much time is often lost in catching a horse in the field, it will be seen that, in money value, this simple point of horse education will more than repay the cost of this book to the owner of a horse that has heretofore been bad to catch; and the saving of temper as well as time will make the improvement in his habits doubly valuable. Both the man and the horse are made better by it.

To Educate a Horse not to Rear under the Saddle or before a Carriage.

Attach a small cord tightly around the swell of the body, tied with a loop-knot, and carry it back into the carriage. By doing this you prevent your horse from rearing, inasmuch as he is unable to expand his body, and, without doing so, it is impossible for him to rear. Simple as is this method, the reader, if he should have occasion to practice it, will find the idea of great value, as it will never fail to prove effectual in removing this, to say the least, unpleasant and often dangerous habit. It is possible that the habit might be broken up in other ways, but there are none so harmless and easy of application as is the one I have described.

My readers will, I doubt not, receive with kindly feelings not only the instructions on the important points of educating their horses to break off bad habits, but will profit by the ideas and examples given of the various means adopted by horse-handlers to create these habits. In the present instance, it is rarely, if ever, known that horses acquire the habit of rearing themselves, but are prompted so to do by the means used, viz., starting and stopping suddenly; pulling sharply on the reins, and then striking the animal with the whip, either of which is a sure and certain means of producing the result of causing the horse to rear up whenever you desire to move off.

The inconvenience and unpleasantness of such a habit are too plain to need more than a mention, besides its often occasioning great alarm to a timid driver; and the simple yet practical means I have given for breaking up the habit, will be found successful whenever it is tried, as it always should be where the habit exists.

To Educate and prevent a Horse from Cribbing.

Build a manger on the floor or from the floor up. In many cases this will prevent a horse from cribbing by getting his mouth below his chest.

Another method, *sure to be effective*, is to place a piece of sheep-skin of long wool, eight inches wide and about three feet long, or long enough to reach from one side of the stall to the other, and on the skin sprinkle cayenne pepper; take soft soap aud rub it on any part of the stall where the horse will be likely to crib. If the above instructions are strictly adhered to, and the horse is fed regularly, three times a day, there will be little danger of his ever becoming a cribber. The slight trouble which this remedy involves will be repaid a hundred-fold by the satisfaction felt in the prevention or cure of a most disagreeable habit, and one which, like every other fault, lessens the value of a horse. In using the cayenne pepper, a small quantity will be sufficient.

There are more bad results accruing from cribbing than many are aware of. From cribbing the horse may become a crib-sucker, which often results in colic, or, as it is sometimes termed,

belly-ache. When this occurs of course it becomes a dangerous habit, and no one should think it too much trouble to adopt the instructions given under this head. Do not think you can eradicate this habit by nailing tin or or iron over the manger; you cannot remove it thus; your horse may desist for the time being, but when put into a stall that is not thus arranged, he will relapse into his old habit; but by adopting this remedy I have provided he will be thoroughly taught not to attempt to bite or or gnaw the manger.

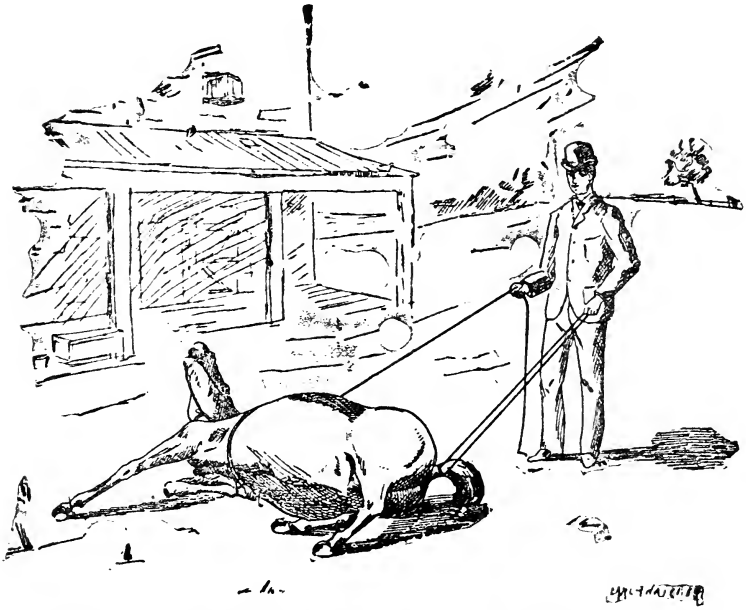
There is a wide difference between preventing a horse from doing what he still wishes to do, and taking from him the disposition to do wrong; the latter alone can properly be called education, and is the only way in which a bad habit can be permanently removed. On this principle I base my whole system; it is education, by appealing to the intelligence of the horse.

To Educate a Horse Not to Kick When the Line Gets Under His Tail.

Horses become kickers from various causes, and one most effectual in producing the habit, is that when a horse gets the rein under his tail, his driver, getting provoked, pulls strongly on the rein in order to liberate it, and by this means burns the skin beneath the tail, when the horse becomes excited and commences to kick. The driver then usually begins to whip, and often-times the horse continues to kick, until he breaks everything within reach of his heels, and runs away. Now the owner has a confirmed kicker, and frequently knows not what to do to correct the fault he has himself established. The instructions below, if properly applied, will effect a cure.

When your horse is down, as seen in the engraving, place a strap under his tail and commence moving it up and down; should he kick, or show signs of resistance, at once punish him; if not, caress him, and in a short time his tail will become limber and he will be taught to not be afraid, though, in driving, the rein should get under his tail. Also, after you allow him to rise to his feet, use the same means as just directed when he was lying down.

In my book I have endeavored to grapple with almost every bad habit that a horse is addicted to, and would here advise all persons who handle them to be extremely careful that if their animals acquire unpleasant habits, they are not mostly to be blamed themselves. Horses differ materially in their ability to learn, and many are less susceptible of impressions than others, therefore, it behooves the educator to first make himself acquainted with the disposition of his horse, and treat him accordingly.



To Educate a Horse Not to Kick when the Lines get Under his Tail.

as the same line of management will not serve for all, but an observance of one important direction, that of *always* using the utmost kindness, will, in most cases, prevent and remove all habits but those of long standing.

Bits Used in Educating Horses Addicted to Bad Habits.

No. 1. To prevent a Horse getting his Tongue over the Bit.—Take a piece of leather, say three inches long, an inch and a half wide, and drill two holes in a straight bit; now rivet this leather on the top of the bit, after which sprinkle on the upper side some pulverized rosin, and take a hot iron and pass over it so as to form a coating. Allow your horse to wear this bit say six or eight days when driving, and he will by that time be sufficiently taught to abandon the habit.

No. 2. Lolling the Tongue.—Take an ordinary straight bit of five-eights of an inch in diameter and drill two holes, each one three-quarters of an inch from the center: then get a piece of very small chain, attach iron bullets, about the size of ordinary leaden bullets used in guns, suspend them not more than one and a half inches from the bit. Now use the bit, every time you drive your horse, for ten days.

No. 3. To Cure a Horse of Sucking Wind.—A horse that has acquired the habit of sucking wind is truly to be detested, as it is oftentimes attended with fatal results, and when once thoroughly settled, great difficulty has been experienced in removing the habit. The method I have introduced of treating this habit has proved successful in most cases.

Take a piece of small gas-pipe, say from five-eighths to three-quarters of an inch in diameter, the ordinary length of a bit; heat it and circle it a little, then drill on the upper side equal distances apart from each end; also drill three holes on the upper side, making each hole between an eighth and a quarter of an inch in diameter, and attach a ring near each end and allow your horse to wear this when driving, say for at least from ten to twenty days or until the habit is removed.

No. 4. To Cure a Side-Reiner, one that Pulls heavily on one Rein.—Take a plain, jointed bit, remove one-half of the part used in the mouth and supply a small chain from the side ring to to the center joint, now on the side that the animal pulls place

the chain; he is not only attracted by the strange sensation in the mouth, but when pulled on the chain side receives such severe and unexpected punishment that he will quickly give up his habit.

No. 5. Dead Mouth or Jaw Bit.—This bit may be used on horses that pull very much on the reins, and a lady may with safety drive a horse, as she can control him quite easily.

The attachment to this bit is made as follows: Take two pieces of leather about three inches in diameter, make a hole in the center of each to admit of the bit, cut the leather so as to put pieces on after, sew up slit, attach two billets on under side with buckle, then buckle on under jaw. This bit may be used without a head-stall.

To Educate Horses Not to be Afraid of Objects When Driving.

It is impossible to overestimate the value of the subjoined instructions respecting nervous and shying horses, therefore on this topic I wish to be particularly clear and explicit. Let the reader understand that horses take fright at objects because they fancy those objects will harm them, and if you can by any means appeal to the horse's brain, and satisfy him that he is not going to be hurt, you have accomplished your object, and in order to do so, you must have control of your horse. I do not mean by this that you are to adopt the too frequent course pursued by many, viz., subduing with the whip, or other harsh means, which will, without almost an exception, increase the fear instead of removing the habit; again, when a horse shies, the driver commences to jerk on the rein nearest to the object, and at once applies the whip, fully determined to master his horse; both man and horse get excited and the horse comes off victorious, because he cannot control him by the means used, and the result is that the next time the animal is frightened it bears a two-fold character, the fear of the object, and the fear of the whip-punishment.

In order to properly educate your horses in this department, I would specially direct the reader to observe and practice the

following directions: Select, first, the most prominent objects at which he becomes frightened, then make the Bonaparte bridle of small cord, and place it on your horse under the bridle, carrying the end of the cord into the carriage and when approaching an object at which he takes fright, get out of your carriage, stand nearly in front of him, give a quick downward pull, and say, "Come here!" At first do not punish him too severely; but if he will not obey, increase the punishment, and so soon as he complies, caress him. Bring him quite near the object, and, if possible, let him smell of it, as by adopting this method he will quickly understand that the object will not hurt him. Now turn him around, and drive him past the object two or three times, and you have accomplished your end.

First Lesson to Educate a Horse not to fear an Umbrella.

Place on the animal the throwing rig and proceed to lay him down, when, should he jump around and show resistance, do not get anxious to throw him quickly, but let him caper about, he will soon give up. After he is down present the umbrella to him folded up, allow him to smell of it, then rub it gently across his nose and head, now open it partly, again let him smell of it, shut it and open it several times until he becomes perfectly reconciled to the appearance, open or shut; work slowly and carefully so as not to excite him more than possible to avoid.

On no account should the operator, when practicing any dea in my system, forget that success greatly depends upon caressing when the animal obeys.

Horse Bad to Bridle.

Horses become unwilling to be bridled from various causes, sometimes from sores on the head or ears, sometimes from hurriedly and improperly removing the bridle, and sometimes from sheer ugliness of disposition, prompted by a desire to be master. The treatment in these cases should be varied. In the latter case named it will be necessary to lay the animal down, and

while thus under control, handle his head and ears, after which put your bridle on and off several times, exercising patience and being careful to avoid anything like roughness. Should he resist, punish him in the mouth, using your best judgment to avoid severity, and so soon as he submits caress. As to the former, where a dislike to be bridled arises from abuses, kindness must govern the conduct of the educator. By using my Bonaparte bridle you will be able to control and counteract all predisposition to resist your efforts in a very short time. Should there be sores about the animal's head, you had better restore to soundness before you attempt to educate to comply with your wishes.

To Educate a Single-footed Horse to Trot Square.

Upon the hind leg of the horse that hitches or single-foots, place two hame-straps, one above and one below the gambol-joint, attaching a ring on front, by which means the straps are confined; then place a small strap on the opposite front leg just below the knee-joint, now buckle on a strap from fore-leg to hind-leg, passing it up under the surcingle. Now proceed to drive your horse, and you will at once discover that he cannot single-foot, but must trot. By paying particular attention to the instructions given, the pleasing result will follow and your horse will be taught to abandon the habit. The reader must be careful not to trot his horse fast up hill nor allow him to draw too much weight while trotting.

To Educate a Pacing Horse to Trot.

Take four hame-straps, attach two on each hind-leg, one above and one below the gambol-joint, confining the straps on the front of the leg by means of a small ring. Then place two hame-straps on the front legs just below the knee-joint; buckle a strap from each fore-leg, carrying them up under the surcingle, and attach them to the rings in front of hind-legs, crossing strap from off fore-leg to nigh hind-leg, and from nigh fore-leg to off hind-leg; now commence to drive your horse, walking him very slow, as

the awkward action of the legs may cause him to stumble; but after a few minutes you may increase his speed, and you will be delighted to see your horse trotting at a rate that will astonish you.

To Educate a Horse to Trot.

The appliance required to form the trotting rig is arranged as follows:

Take four hame-straps, attach two on each hind-leg, one above and one below the gambol-joint, confining the straps on the front part of the leg, by means of a small ring. Then take a standing martingale and attach a small pulley on the lower end of the martingale; then take a small, strong cord, tying one end in the ring on one hind-leg, passing the other end through the pulley, bringing it back to the other hind-leg, and tie it in the ring; adjust the rope in accordance with the stride of your horse, observing to drive him very slow for a time until he shall become accustomed to the rig.

This idea with alterations as hereinafter set forth may be successfully applied to horses while being used by the husbandman in ploughing, that are addicted to the habit of kicking. I have already given the reader a number of ideas on this point that, if used in accordance with instructions, will not fail to give satisfaction.

Put on the horse the trotting-rig, as seen in engraving, with the exception of the standing martingale attached from the pulley to the bit-ring of the bridle; then through the eye of the pulley insert a small cord, say twelve feet long, carry both ends up between the fore-legs, pass one end through the bit-ring on the off-side up over the head, and down on the nigh-side of the head to the bit-ring, and then tie it. Now take the other end of the cord and carry it up on the nigh-side through the bit-ring and pass it over the head down to the bit-ring on the off-side and there tie it. By thus manipulating your cord you will perceive that you have a system of severely punishing the horse when he shall kick.

To Educate a Horse Not to Kick while in Shafts.

Horses are quite often educated to kick in harness as well as out and almost numberless accidents have been caused by this vicious and bad habit. Men are found reckless enough to tantalize their horse with a whip and sometimes punch him with a stick, regardless of consequences. The result, in most cases, is that the animal becomes a kicker, and the habit when once formed is not easily eradicated by resorting to the old stereotyped method of placing a strap over the horse's rump and buckling to the shafts on each side. This treatment may in time effect the purpose, but it will require months to do so. Laying *all others* aside, I with confidence say to the reader, if he will but practice the subjoined idea he will find it not only practical but effectual, because the punishment is so severe that a few lessons will convince the horse that it will greatly be to his advantage to abandon the habit.

Take a cord twenty feet long, divide it in the center, place it back of the ears, bring it down and cross it in the mouth, then bring it up between the eyes, placing a ring or loop there; now bring it back through a ring attached to the head-stall between the ears, then bring both ends of your cord under the saddle of the harness and along the back, to a ring slipped over the crupper against the hip-strap; bring the cords through the ring down to the shaft on each side of the horse, observing to leave just slack enough so that your horse may not be too much confined. The cord used may be quite small, so that it is strong.

Now when your horse makes an attempt to kick he will find a severe punishment immediately meted out to him, and thus finding his attempt fruitless as well as painful, he will be made to understand that while obedince is rewarded, punishment quickly follows each act of disobedience. This simple yet effective expedient makes the horse punish himself for his own misdeeds, and by making the act of kicking the cause of his suffering disinclines him to attempt it, for neither horse nor man will voluntarily provoke certain pain.

To Educate a Lazy Horse, and Infuse Life into Him.

I have already given many ideas referring to balky horses, and as the old, tried remark is verily true, that "in the midst of council there is safety," so with a multitude of ideas there is certain success. I will add one more to the catalogue.

Something that especially attracts the attention of a horse accustomed to balk often causes him to forget for the moment his offensive habit and start off, much to the surprise of his driver. By adopting the idea set forth below, and following carefully each detail given, the reader will have no difficulty, in ordinary cases, with this peculiar *tormentor*, in accomplishing his purpose.

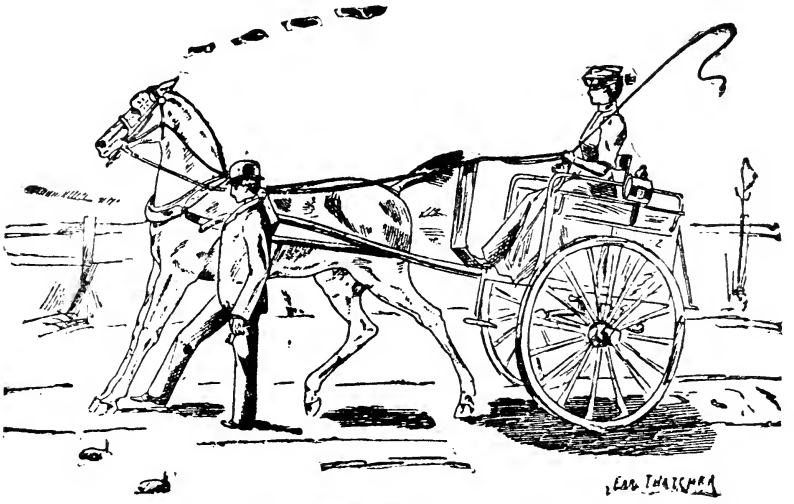
By many this may be considered a kind of jockey trick; but the reader will find the information valuable if he has a lazy horse or one that does not drive up well on the bit, as by following the directions given below he will be prepared to show as much style as any man in his county.

Directions.—Take a small chain, about three feet long and attach to it a strap or limber stick about the same length, with this in hand walk into the stable and commence plying on him a few smart blows, with this educator, above the gambol-joint, repeating it once a day for three or four days; when you hit him of course the chain rattles and makes, to him, a peculiar noise. Now, after you harness him up, put the chain in your carriage, then take your place behind him and commence driving, and when you want to show style, just kick the chain about a little with your boot and you will be surprised at the spirit and zeal manifested by your horse.

An Easy Method of Starting a Balky Horse who Stops on the Road.

Among the various bad habits which horses acquire there are none which more severely try the patience of man than does the habit of balking. Frequently a horse is quiet, kind, and a good roadster, but has this habit of occasionally stopping in the road. At such times the almost universal practice is to whip the horse,

and sometimes most brutally, or the more sickening custom of procuring a bundle of straw or some shavings and setting them on fire under the body of the horse. Such kinds of treatment I utterly discard, and the reader will find, in another part of my book, that I give several methods which will prove effectual in eradicating this habit, only meting out sufficient punishment to secure obedience.



To Start a Balky Horse.

Below I give an excellent method of starting a balky horse, and one which will prove effectual, though it will not educate the horse to abandon the habit. When your horse balks get out of your carriage, walk up to him and commence kicking him with the toe of your boot under the fetlock joint, first one then the other using the word "shoo!" loud and quick every time you kick. Then take your seat in the carriage and use the word as before directed, when your horse will start at once. This process diverts his attention and causes him to move on.

Teaching Horses Tricks.

Many horses are susceptible of an education far more extensive than is necessary for ordinary use, and for the benefit of such persons as may desire to teach their horses something more than the usual accomplishments, whether for their own amusement, or for the purpose of seeing how far the intelligence of the animal can be developed, I have prepared a description of a variety of tricks, which, as performed by my horses, have been received with universal applause, both in the United States and in Canada. But that no person may be misled into supposing that this forms a part of my general system of educating the horse, I deem it proper to present these directions separately.

Though the tricks to be hereafter explained will add nothing of intrinsic value to the horse, nor of real benefit to his owner, yet the reader will readily see in them the demonstration of a highly important fact, viz., that horses can be taught the meaning of words, and to yield obedience to sounds to such an extent as to convince a candid mind that their intelligence is far in advance of that generally attributed to them. With these remarks I will proceed to explain the *modus operandi*, as I call attention to a variety of tricks they may easily be taught to perform. Before passing to this, let me impress on the reader some leading principles in educating the horse. First, never allow yourself to get in a hurry; impatience or excitement on your part will go far in defeating the object of your instructions. Second, do not prolong your lessons beyond twenty minutes at one time; and, especially, never use severity beyond that which may be absolutely necessary. Thus by kindness and patience in repeating your lessons at short intervals, you will surmount every difficulty and accomplish your purpose in a manner satisfactory to yourself.

To Educate a Horse to take a Handkerchief from his Side.

The reader must understand that it is necessary first to educate your animal to obey the words "come here" and "whoa" before he can be taught tricks successfully.

There must be great caution used in teaching the above trick. First stand on the nigh-side and prick the animal lightly on the shoulder; he will reach round and bite near where the punishment is inflicted. After you have repeated this a few times hold a handkerchief in hand with the pin and he will soon catch hold of it with his teeth; as you use the pin, say "Take it from the nigh-side." Next prick him with a pin on the off-shoulder, handkerchief accompanying, and say "Take it from the off-side." When you have given him five or six lessons, you may hold the handkerchief on his side and touch him with your finger, repeating the words above directed. The instructor must be cautious when using the pin in educating, not to provoke or make the animal cross.

To Educate a Horse to Kiss a Boy.

This kind of education is not particularly beneficial to the horse owner, but it illustrates clearly the idea forshadowed in many parts of my work: first, that the horse may be taught almost anything that is in his power to do; second, that if you go rightly to work you may so gain his confidence that he will cheerfully obey every reasonable command.

Direction.—Take a piece of apple, place it in your mouth and say to your horse, "Kiss me." He will approach you to take it; when he does so caress him. After repeating this a few times, when you approach him extend your mouth towards his and repeat the words "kiss me." If he does not respond, place a piece of apple in your mouth as before, and repeat it until he shall obey without the use of the apple.

To Educate a Horse to Bore for Oil.

Place on your horse the Comanche bridle, and educate him to the words, "Come here," so that he will mind you readily on hearing the words; by this you can better control him while

educating to the trick in question. Some difficulty may at first be experienced, but by patience and perseverance you will not fail.

Take an ordinary pole-strap and place it on your horse below the fetlock joint on the off fore-foot; now take one loose turn round the nigh fore-foot, and take the end of the strap in one hand, with the other hand pull gently on the bridle, using the words as instructed. Your animal will attempt to obey, but will find himself somewhat hampered, yet he will quickly learn. If he should at first move a foot to please you, say "Whoa," and then caress. Make your lesson short, and do not try to force him too much, for if you do, he will become excited and resist your effort.

How to make a Horse walk up.

First put a rope around his neck, bring it down through his mouth, back through the loop on the neck, jerk him till he raises his fore-feet the least bit, then stop and caress him; then check him up tight to a surcingle—from the bit to the side-ring is the better way; then jerk on the cord, and he will soon get up erect; repeat, still caressing him well for all he does; he will soon get up at the motion of the whip. You should, when practicing him, repeat the words, "get up, sir!" It is in this manner I taught Tom Thumb to go up and down stairs, and to perform on the stage in different places, affording amusement to thousands of witnesses.

To Educate a Horse to Sit Down.

Horses differ very much in their capacity for being taught, therefore, if you desire a pleasing subject, select one that is tractable. Directions: Make the Bonaparte bridle, and place it on your horse, so that you may have him under proper control, then put on him a common hame collar; now take two pole-straps and place one on each hind-leg, below the fetlock joint, and attach a cord, say twelve feet long, to each strap, carry your cord up through the collar on each side and bring the ends behind him, holding also the end of the Bonaparte bridle in your hand, and commence to pull on your cords; now repeat over the words, "sit down"; as he goes backwards draw up still more on your cords, until he shall sit down. Do not allow him to remain in

this sitting posture more than a minute the first lesson. Repeat this two or three times a day for five or six days, and you, with the assistance of a whip pointed downwards to the ground, will witness the pleasing effect of your instruction by seeing your horse sit down at the word of command.

To Educate a Horse to Drive a Boy off the Pedestal.

It will be necessary to first educate the horse to mount the pedestal, then proceed in the following manner. Put on the Bonaparte bridle, using a cord, say twenty feet long, and send your horse away from you with a whip, the length of the cord, then give him a slight pull, and say, "Come here;" then run from him and mount the pedestal yourself; when he approaches he will try to mount, and as he does so you jump off. After you have thus exercised him a few times get a boy to assist you. Let the boy stand on the pedestal, and say to your horse, "Come here and mount up;" instruct the boy to leave so soon as the animal shall mount.

You will find this trick quite a sensational one, and not difficult to learn your horse.

To Shake Hands.

This is easily accomplished by tying a short-strap or piece of cord to the forward foot below the fetlock; then stand directly in front of the horse, and hold the end of the strap in your hand, and say, "Shake hands, sir." After which pull immediately upon the strap, which will bring his foot forward, and which you are to accept as shaking hands; then, of course, you must caress and feed him, and keep him repeating, until, when you make the demand, he will bring the foot forward in anticipation of having it pulled up.

How to Make a Horse Bow.

Prick him in the breast with a pin, till he throws his head down and up the least bit; then take the pin away, and caress him kindly; repeat for a few times, until when you stand back and attract his attention, he will nod his head, expecting a prick in the breast.

To Educate a Horse to Walk on His Knees.

The reader will observe, by reading my book, that great use is made of the Bonaparte bridle, and if those who handle horses will always resort to it when obedience from the horse is desired, they will save much time, trouble and annoyance that so often occur, especially to persons who quickly lose their tempers. Men can accomplish more in fifteen minutes using the bridle than in fifteen hours with any other means, as it does not inflict a severe punishment when properly used, but never fails to secure obedience. Therefore, as in most cases it is used, I, in the present, introduce it again.

Put a surcingle on the horse, attach a strap to his nigh fore-foot between the fetlock joint and hoof and draw it up to within eight or ten inches of his body, then take a strap or cord, say 6 or 7 feet long, and fasten it to his off fore-leg in the same manner and secure the services of some person to assist you, directing him to stand on the off-side, and, when directed, to pull up his foot. Place on the horse the Bonaparte bridle, and take your position in front of him with bridle in hand, requesting assistant to pull, when your horse will come down on his knees, now pull on your bridle and say, "Come here," when he will soon obey you. Do not make your lessons long, but repeat them often; not forgetting to caress him if he should make the slightest move towards you.

Never attempt to teach a horse this trick with shoes on his hind-feet, as he might cut himself, which would cause him to dread a second effort.

To Educate a Horse to be Vicious.

Many persons are incredulous in regard to the assertion that horses can be educated; had one lived a hundred years ago he might have been excused for such incredulity, but in this age of knowledge and advancement in all departments of human life, no man should close his eyes to any of the developments wrought by man's ingenuity. That the horse possesses more intelligence than many are disposed to admit, facts abundantly prove, and

that he is quite as susceptible of acquiring evil and vicious habits as is man, the following trick will show.

My horse, Prince Albert, appears to enjoy the subjoined trick greatly, and I regard it as quite a sensational one. To educate a horse to be vicious you have only to attract his attention, and then appear to be afraid of him. For instance, strike him lightly with a whip on the knees, then run away from him, and after you have repeated this a few times he will run after you. You may make the trick more interesting by calling him names, such as "a nigger," "a mean horse," and on speaking the words run from him. But be careful to have some place of safety, so that, when he follows, you may get out of his reach, as at some time he may dissappoint and overtake you and mete out a punishment that will be anything but pleasing or desirable.

How to Teach a Horse to Laugh.

Prick him with a pin on the nose till he turns his lip up; then caress him well. He will soon learn that when you point towards him and say, "Laugh," that it means a prick in the nose, if he does not turn his lip up.

To Educate a Horse to Push a Vehicle.

After your horse has been taught to mount a pedestal with his fore-feet, and to stand and walk upright on his hind-feet it is a comparatively easy task to educate him to mount upon a vehicle and push it. It is not at all necessary that a horse should be attached to it in front.

In this trick it will be scarcely necessary for the educator to put the Bonaparte bridle on his horse unless he should show some stubbornness, but, with biting rig on, stand near his head, whip in hand, and say to him in rather a loud and sharp tone of voice, "Get up!" Some fear on his part may be manifested, still do not give up nor lose your patience, but lift his feet up and caress him. When he does get up do not at first allow the vehicle to move, nor until he has mounted two or three times, then say to him, "Push!" and in a short time you will have taught him

not only to get up on the vehicle but to push it in front of him. After your horse has been thoroughly taught, you will discover that he is delighted to amuse you, and he will appear pleased to participate in the enjoyment of the trick.

How to Make a Horse go Lame.

Tap him on the fore-leg till he holds it up, then caress him kindly; lead him with the left hand to the bit, and tap the left fore-leg with a stick in your right hand; repeat the word "lame lame, lame," and your horse will soon learn to hold up one leg at the command.

To Educate the Horse to Walk on his Hind Feet.

Make the Bonaparte bridle, and put it on your horse; also put on a bitting rig, which is no trouble, but necessary, drawing his head pretty well up and in. Now stand near his head with bridle in hand, and jerk upward, as though you desired to lift him up, at the same time repeating the words, "stand up on your hind feet!" repeat this several times, and if he does not make a move to please you, take hold of one leg, raising him up with one hand and using the bridle with the other, as before directed, not forgetting to caress him if he makes the slightest move in the direction of obedience. In order to ensure success, kindness and patience should be the ruling principles. After you have taught your horse to stand on his hind feet you will next educate him to walk upright. This can be easily done by observing the following directions. Stand in front of him, whip in hand, saying, "Get up!" then shake the whip in front of him, stepping backwards slowly, at the same time say to him, "Come here!" repeating it sharply and touching him gently with the whip on the knees. By carefully observing the above directions, you will quickly teach your horse to stand upright, and to walk on his hind feet.

How to Make a Horse Say "No."

Prick him on the neck at the terminus of the mane till he shakes his head, then remove the pin, caress him, repeat for a while, and your horse will soon shake his head when you raise

your hand to your heart; be always sure to treat the animal kindly for well-doing, and caress him when he deserves it, and he will repay you by his love for you and willingness to do your bidding.

To Educate a Horse to Mount a Pedestal.

First make the Gleason bridle, and place it on your horse, then lead him quietly up to the pedestal, and say to him, "Get up with your fore-feet!" of course he will not obey; now you must teach him your meaning. While you hold the bridle let some one take hold of his front foot, raise it carefully and place it on the pedestal; then caress him, after which say "Get down!" at the same time using your bridle in gently backing him. When he puts his foot down do not omit to caress him. Repeat this until he will obey when spoken to, then go through the same process with the other foot. After this, place both feet on the pedestal; then require him to get down, then up and down till he will obey you without the use of the bridle. Great care should be taken not to excite the horse while educating him, for when excited his brain becomes muddled, and he is unfitted for retaining your instruction.

To make your horse stand on three legs; take a pin, and place it in the end of your whip-stock, and with the point prick him slightly on the leg, in front, just below the fetlock joint, but not hard enough to make him kick; repeat this several times accompanied by the words, "hold up your foot!" continuing to repeat the punishment and words until he will obey the command without punishment.

How to Make a Horse Waltz.

Tie his head to his side by means of a surcingle and cord, fastening the cord at the side, reaching from the mouth: touch him lightly with the whip. He has to go, and, of course, he must go around and around. He soon learns perfectly to waltz by the motion of the whip, the teacher still repeating the word "waltz."

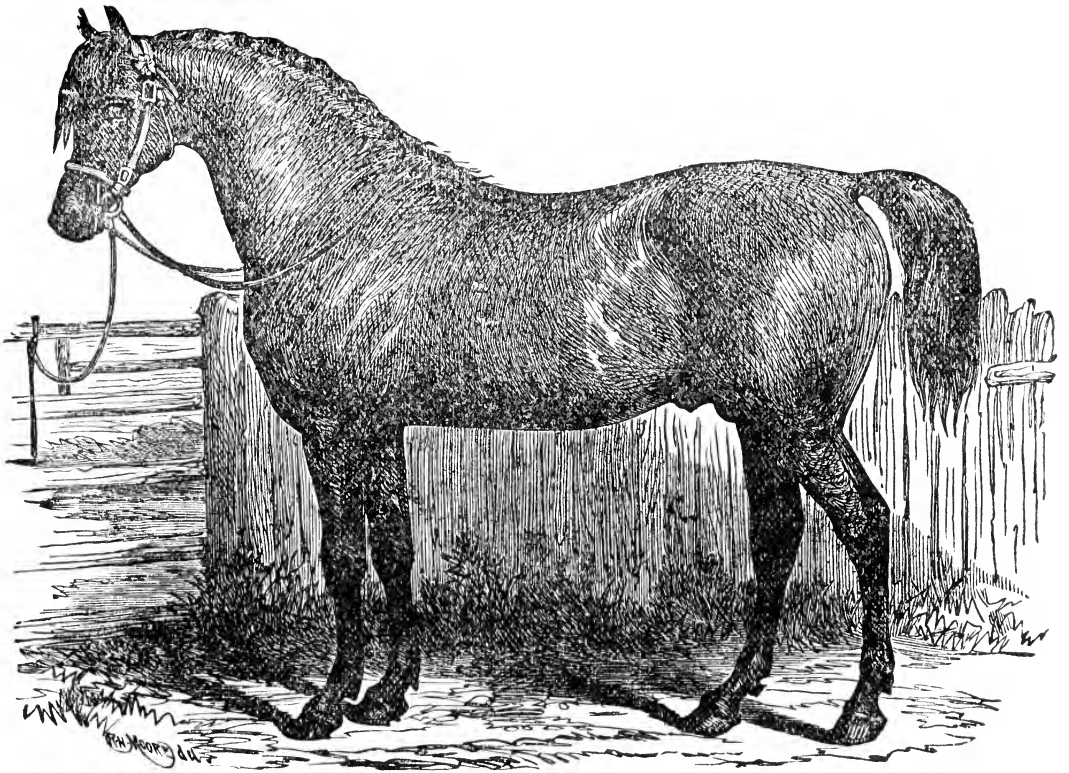
How To Buy.

. Get Correct Information.

Every horse owner sooner or later becomes a judge of what he is buying. If he depends entirely upon the lessons learned through cheats are practiced upon him by sharp jockeys, life is too short for him ever to become an adept in distinguishing vice, unsoundness, "dosed up" and used up horses as among the various tricks and swindles practiced upon the ignorant and unwary. Generally after being cheated, or absolutely swindled a few times, the breeder goes to the only correct source of information, concisely written and carefully illustrated books. He is thus enabled not only to study, but subsequently to carry in his mind what he has read and seen; he comes to compare critically the living animal with the illustrations and descriptions, and thus becomes an expert himself, and in a tenth part of the time by which he could acquire correct information in any other way. This is precisely the means used by any professional man in the acquisition of true knowledge in the pursuit of his profession, whether it be in a learned profession or in the education to practical art. Thereafter practice makes perfect.

II. The Buyer.

Suppose he is looking for stock from which to breed trotting horses. He must then consider the type of horse he wishes to breed; whether for speed alone, or for style and speed. That is, first class road horses, or large, strong, able horses, combining in as great a degree as may be large size, strength, endurance and such style as may be conformable with this class of horses.



A Fine Stallion Showing Thorough Blood.

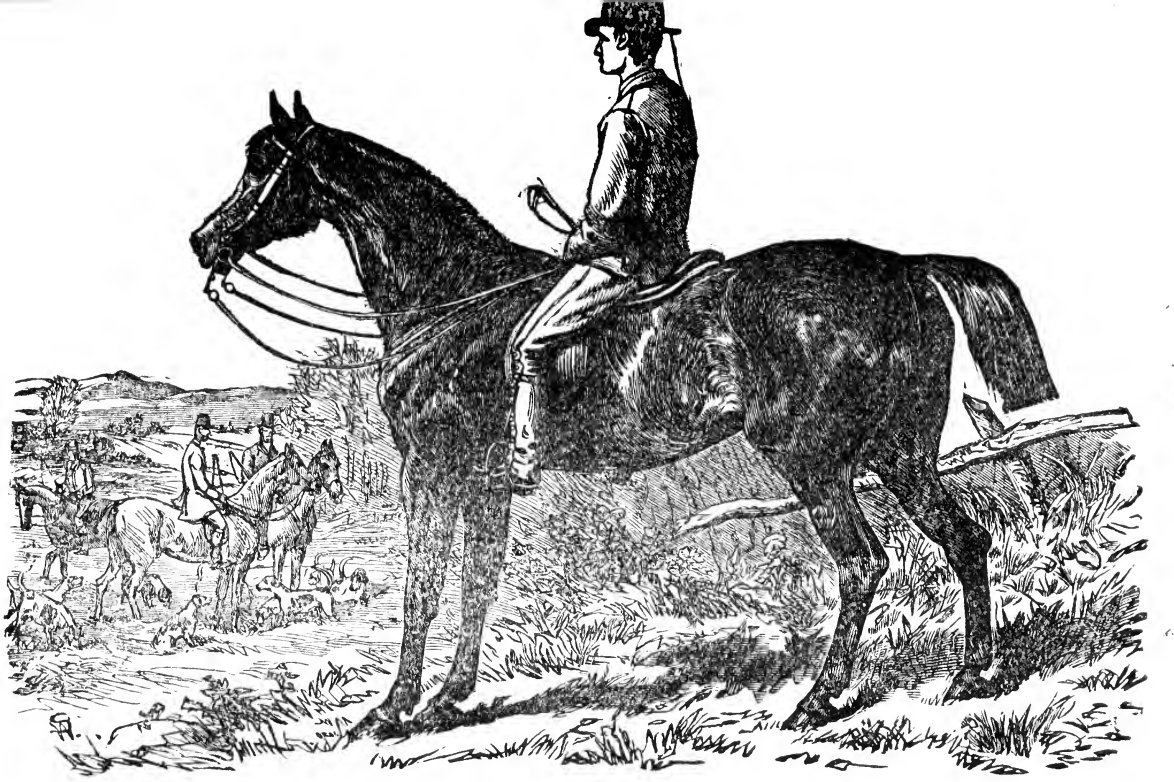
As showing what may be done in colts got by breeding up out of roomy mares of fair style, bred to high class trotting stallions, we give two cuts of stallions, certainly good enough for sires, and as models of what such horses should be. The first showing eminent breeding, with style enough; rather straight on his fetlocks, according to the idea of many good horsemen, but with length enough, from our standpoint, to give flexibility. A horse compact and smooth, with excellent flat and sinewy limbs, good feet, ample chest, good lungs, fine eye, broad forehead, and strong jaws. The head not the ideal of modern "blood horsemen," but nevertheless showing docility and intelligence in a high degree. Showing also high breeding in every part.

The cut on page 55 is of a horse of great style and endurance, fine all over. A horse that will go with his head well up; limbs exceedingly fine, mane rather light, but with plenty of tail, as a horse should have; evidently showing thorough blood.

For real and intrinsic merit, the first should be taken. There is plenty of style about him, and strength. There is also a body of fine character on limbs of great power. Such will be found acceptable and sought after always by gentlemen wanting a single horse, or a pair for driving on the road, or for driving in the city parks. Either of the two will make capital and stylish saddle horses, if well trained, such as no gentleman of ordinary weight or lady need be ashamed of when taking the afternoon trot or canter on the fashionable boulevards or park-drives of our large cities, or on the streets or roadways of cities having no parks. The first the best horse, the second the most stylish.

Another good horse is of large size and strong build, adapted for drawing as a single horse for the coupe, or one of a team to the family carriage; as one of a pair for a coach or barouche, one that will give satisfaction almost anywhere, if not driven over eight miles an hour, and capable as well of hauling loads on good roads, at a fast walking pace.

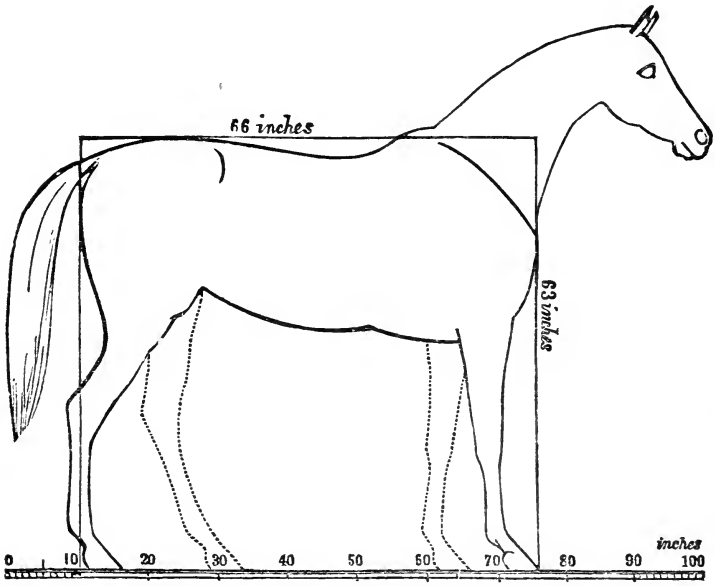
A horse of this stamp, sixteen to sixteen and half hands high, not particularly heavy set, rather long-limbed, with rangy neck and good head, with plenty of spirit and weighing about



A Light Hunting Horse.

1200 pounds, may be called a *general utility horse.* Such will command ready sale at any time, if well broken and trained, say at from $200 to $300 each, and if particularly nice and well matched, often at $800 or $900 a pair, as carriage horses when five or six years old.

III. Proportions of the Horse.



PROPORTIONS OF THE VARIOUS PARTS.

To arrive at a clear understanding of the proportions of the horse, we give an outline that will be a good study, not only for the beginner, but will be valuable for reference for any horseman, however expert he may be. This illustration combines the average measurements of six horses, accepted for perfect symmetry, and taken, says one of the most graphic and lucid of writers on the horse—two of them from celebrated stallions, two from thoroughbred hunters, and two from chargers of great value. This, therefore, will not apply to draft horses, but it will be

found that the nearer the general utility horse comes to these measurements, the better he will be.

	INCHES.
Height	63
Length from shoulder-point to quarter	66
From the lowest part of the chest to the ground	36
From the elbow-point to the ground	39
From the withers to the pole, just behind the ears, *in a straight line*	30
The same measured along the crest	32
Length of head	22
Width across the forehead	9 1-2
From the withers to the hip	22
From the stifle to the point of the hock, in the attitude shown in the plan	29
From the root of the tail to the stifle-joint	26
From the point of the hock to the ground	22 1-2
Length of arm from the elbow to the pisiform bone (the rear bone of th se forming the upper articulation of the knee)	19 1-2
From the pisiform bone to the ground	19 1-2
Girth varies from	78 to 79
Circumference of fore-cannon bone (large metacarpel or shank bone, extending from the knee to the fetlock)	7 1-2, 8, 8, 8, 8 1-2 and 9
Circumference of arm just below the elbow	16 1-2 to 18

The foregoing is not to be taken as a fixed rule in comparing ordinary horses, nor even those well-bred. For the hunting field, the fine saddle horse, or any of the uses to which practical men put their horses, aside from flat racing, select as many of the superior points of the horse as described, as you can find, and beware of low withers and high croup. The horse that will come to the standard that we have given in the diagram, is as a rule the horse to buy.

IV. The Cleveland Bay for Profit.

Of late years this admirable and stylish horse as improved from the old farm horse of fifty years ago, has attracted attention in the United States, and especially in the West, where many fair specimens have been imported. He often has dashes of white which do not detract from the style of any horse, and

show breeding. It is a horse showing blood and breeding, with lofty crest, magnificient withers, round barrelled, and clean limbed, a coat like satin, and a head of excellent proportions. Colts from such a horse out of large, roomy mares of good style, will always sell for high prices. When you find such a stallion do not be afraid to buy, he will pay, and his foals will pay for their feed and training.

The old fashioned horse of this race, the Cleveland bay, is extinct and gone. The present form is the result of crosses with staunch thoroughbreds, giving better form throughout, greater speed and good style. We consider them as among the very best from which to breed stylish animals from proper mares. Horses that may do the ordinary farm work until six years past, and then be sold at good prices for stylish omnibus, express, light draft, and carriage horses in our cities. Persons who have large, well built mares, wishing to breed colts that shall have size enough for any farm or road work; that will breed to uniform color, so that they may be easily matched; that will have style—not that of the blood horse, or light driving, or trotting horse—will do well to investigate the characteristics of the Cleveland bays. Canada has acquired a high reputation for stylish, well matched coach horses. It is founded in a great measure upon crosses produced by breeding the modern Cleveland bays upon large, handsome mares of more or less breeding.

Such horses if properly cared for will do eight or nine miles an hour, in harness, and under the saddle may be pushed up to twelve miles an hour; are active in all their gaits, tractable, easily managed, intelligent, fast walkers, always ready for their feed, and as eager at labor, as they are, kind and intelligent every where. The late Henry William Herbert, a thorough horseman, an accurate judge of horseflesh, and a finished writer, in his voluminous work, "The Horse of America," thus describes the original Cleveland bay, and also the improved horse of his time: "The Cleveland bay in its natural and unmixed form, is a tall, powerfully built, bony animal, averaging, I should say, fifteen hands three inches in height, rarely falling short of fifteen and a half or exceeding sixteen and a half hands.

The crest and withers are almost invariably good, the head bony, lean, and well set on. Ewe-necks are, probably, rarer in this family than any other, unless it be the dray-horse, in which it is never seen.

The faults of shape to which the Cleveland bay is most liable are narrowness of body, and flatness of the cannon and shank bones. Their color is universally bay, rather on the yellow bay than on the blood bay color, with black mane, tail and legs.

They are sound, hardy, active, powerful horses, with excellent capabilities for draft, and good endurance, so long as they are not pushed beyond their speed, which may be estimated at from six to eight miles an hour, on a trot, or from ten to twelve—the latter quite the maximum—on a gallop, under almost any weight.

The large and more showy of these animals, of the tallest and heaviest type, were the favorite coach horses of their day; the more springy and lightly built, of equal height were the hunters, in the days when the fox was hunted by his drag, unkenneled, and run half a dozen hours or more, before he was either earthed or worn out and worried to death. Then the shorter, lower, and more closely ribbed up were the road hackney, a style of horse unhappily now almost extinct, and having unequally substituted in its place a wretched, weedy, half-bred or three-quarters-bred beast, fit neither to go the pace with a weight on its back, nor to last the time.

From these Cleveland Bays, however, though in their pure state nearly extinct, a very superior animal has descended, which, after several steps and gradations, has settled down into a common family, as the farm horse, and riding or driving horse of the farmers, has about two crosses, more or less, of blood on the original Cleveland stock

The first gradation when pace became a desideratum, was the stinting of the best Cleveland Bay mares to good thorough-bred horses, with a view to the progeny turning out hunters, troop horses, or, in the last resort, stage-coach horses, or, as they were termed, machines. The most promising of these well bred colts were kept as stallions; and mares of the same type, with their dams, stinted to them produced the improved carrriage horse of fifty years ago.

The next step was putting the half-breed fillies, by thoroughbreds out of Cleveland Bay mares, a second time to thorough-bred stallions; their progeny to become the hunters, while themselves and their brothers were lowered into the carriage horses; and the half-bred stallions which had been the getters of carriage horses were degraded into the sires of the new, improved cart horse.

V. The Light Harness Horse.

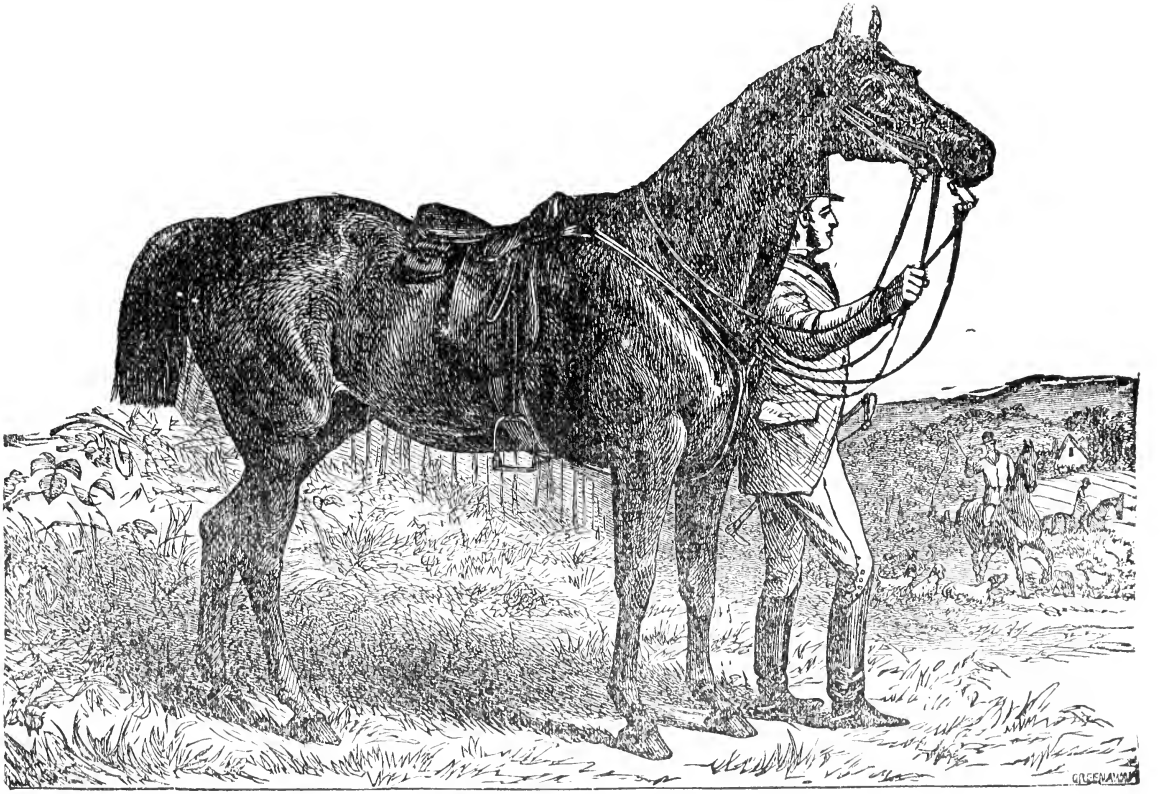
In many cases, where the roads are superior, and the animal is used in a vehicle of the lightest construction, to carry only one person, size is not always necessary. Very many horses of fourteen and a half hands, are exquisitely handsome and capable of very fast work. One of the best I ever knew was a St. Lawrence mare fourteen hands high, that very few large horses could get by on a smooth road—the "Baby," as she was called—when driven on a track, always going as a pacer.

VI. Saddle Horses of all Gaits.

It is well that America's sons have taken kindly to the saddle. It is well enough for men of mature age to favor the buggy or light wagon, but every young man and woman who can, should learn to sit a horse perfectly, and to manage him at all gaits. In the South this is the case, but in the North the perfect saddle-seated rider is not so frequently found. Lately, thoroughly trained saddle horses are much sought after in our cities, and certainly there is no place where they may be so perfectly trained as in the West. It would be well for the farmer to have at least one well trained saddle horse to sell when called for. Twelve months training will put them in form. For good wear-and-tear, compact, able as a good leaper, of fine form, and undoubted bottom for any distance, the illustration showing a saddle horse of good form, will give an idea of what a saddle horse should be.

VII. The High-bred Hunting Horse.

When a long stride, great leaping powers, and ability to go long distances at high speed is required, the horse should be not less than one-half to three-quarters bred. A greater propor-



A Heavy Hunting Horse.

tion even is favored in the South, where the passion for hunting is only second to that in England. A horse of extra good action will combine size, indicating capacity for carrying great weight; high breeding, shown in the crest and head; wonderful lungs; great length of hip and limbs, and being near perfection as possible · a high caste horse that will not fail his rider in time of need

VIII. Racing Horses.

There is one more class of saddle horses worthy of special notice: the thoroughbred racing horse, the foundation upon which has been built all that is valuable in every horse where speed, bottom, elegance, and great bone, sinew and muscle in every respect are required. It is the fact that on the race course there have been schemes and tricks practiced, probably there always will be those scandalous in the extreme, but frowned upon by all breeders of respectability. Among the more respectable associations rules of the most stringent character have been drawn, and fairly lived up to. If dishonest jockeying can be still further eliminated the true animus of the turf may have a bright future before it in still farther improving the breed of staunch thoroughbreds, capable of carrying weight, and with bottom to get the rider two, three or four miles at high speed. These are what are really wanted, and not those that at the end of a quarter or a half mile are entirely blown and jaded, or as an Englishman would express it, quite "pumped out."

IX. What the Racer Should Be.

The model racing horse should be from fifteen and a half to sixteen hands high, full and muscular in his build, with clean, sound limbs, short backed, round in the barrel, with long hips, deep and oblique shoulders, a rangy and not too muscular neck; a head fine, bony and with rather large muzzle and prominent nostrils, broad in the forehead, with a full, bright, but mild eye, denoting a high nervous temperament, uniting great courage with docility.

X. To Avoid Vices and Defects.—How to Detect.

They are legion, and he who at present buys any horse, whether for speed or work, must be on his guard against them. Among the principal disabilities to be guarded against are:

1. Bone spavin, curb, ring-bone and splints.—To detect these look at the horse from before and behind for spavin and curb at the hocks; for ring-bone, at the fetlocks and for splints, below the knee. Feel the bones at all these parts for tenderness or enlargement. If they appear reject the horse instantly. He will be worthless as a sire, or for riding or driving.

2. Stumbling.—Examine the knees to find if they are scarred or show the marks of previous injuries, or that have been operated upon for callosities. Then walk him over somewhat rough ground, and at a slow pace, with an entirely loose rein, to see if he trips or goes weaker on one leg than on the other. If he is a stumbler, he is the most dangerous animal a man can own, unless it be a kicker; in fact, more so than the latter, since kicking may be guarded against, when knowing the vice.

3. Kicking.—If this is suspected, the animal will lay back his ears if approached in an apparently careless manner, though horses do this sometimes from mere playfulness. If they are vicious, they will lay their ears more completely back, and the eyes will also denote their intention. Examine the stall, where it is known they have stood, for marks of the hoofs, and, above all, give the animal a chance to show his propensity when the groom is not near.

4. Pulling at the halter or bridle when tied.—Tie him up in a close yard, with a halter he can easily break, leaving him quite alone for about half an hour, to exhibit his propensity if he will.

5. Crib-biting.—If the horse is a confirmed crib-biter, his teeth—the central incisors—will show wear where he has grasped objects to enable him to get leverage to perform the operation. Tie him out to a stump, or at a post about three feet high, and watch him, no person being in his sight.

6. Balking and backing.—Horses seldom balk under the saddle, when they do, they are dangerous in the extreme, often

stopping suddenly when under motion, or backing into dangerous places. It is difficult to detect, for they will sometimes go days, weeks and even months all right, and then suddenly show the vice. As a rule, it is exhibited by bad tempered, badly trained horses. A warrant from a respectable owner is the best guarantee. It may sometimes be detected, if a person strange to the horse mounts and attempts to start him suddenly. In harness it may often be detected by the manner in which the animal starts and travels.

7. The Rogue.—The rogue is the horse of vices; he may take the bit in his mouth and run away, he will rear, back, kick, strike, bite and do twenty other unpleasant tricks, not always from pure vice, but often from exhuberance of spirits, or from being crossed in some way. They generally perform well enough after they have found out that their rider is their master. They are difficult to detect in their vices, except by the thorough horseman, who is well versed in every expression or act of the horse.

8. Bishoped Teeth.—So named from the scoundrel who invented filing an old horse's teeth to make him look young, even to burning and blackening the cups formed. A careful study of the chart of the horse's teeth, given in this book, will enable any person to detect this, since it is impossible to cover the shrinking of the gums, by which the teeth show narrow, and are peculiar in shape.

9. Weak Eyes.—Whatever the occasion, have nothing to do with a horse with bad eyes. Bring the animal from a rather dark stable just inside the door where the full light may strike the eyes. Examine the lids and pupils carefully, to see if there is any considerable shrinking; the eye should be able to bear the full light. Horses are sometimes near-sighted, and also far sighted. *Nearly all shying horses become so either from defect in vision* or from cowardice.

10. Moon Eyes.—This is a specific ophthalmy, from which one or both eyes periodically change color, and during the paroxysm it may become entirely blind. During the interval the eyes look natural. It is better, if the buyer suspects this, to take a warranty against it.

11. Blindness.—This is sometimes difficult to detect by the ordinary observer by looking at the eyes. In rare cases the eyes may seem natural. A blind horse, however, may be detected by his mode of progression. He will take high steps and often appear afraid to proceed.

XI. Other Faults and Imperfections.

The disabilities noticed in the previous sections are those of positive unsoundness, or else of determined vice. Some others that should not be overlooked, are easily examined by careful examination and test. These are:

1. Glass Eye.—This, if not complicated with specific disease, does not interfere with sight in any respect. It is a serious defect, simply so far as looks are concerned. Usually only one eye has this peculiar white glassy appearance, the pupil perfect, and the iris quite natural. It should affect the price of the animal, only as detracting from elegance.

2. White Spot.—Sometimes a small white spot will appear on the eye of a young horse, generally after three years of age, and usually near the outer corner. It has a peculiar cloudy appearance, sometimes increasing to the size of a hemp seed, and occasionally larger. The duration is variable, sometimes lasting for years, and again disappearing in a short time. It really impairs the vision but little, if any. Unless its history is known a veterinary surgeon should decide whether it is incipient cataract or not. Some veterinarians have termed it spurious cataract, but this is entirely a misnomer. The name white spot describes it perfectly.

3. Roaring.—This is the result of obstruction in some part of the larynx or trachea, impeding the breath, and causing a peculiar roaring sound when the animal is in motion. It is rarely found in the United States, being chiefly confined to draft horses. It is often the result of chronic cough. In England it is quite common, and when present in a horse of fast work, will render him worthless for the road. It may be discovered by urging the horse to a fast gait.

4. Oblique Tail, or Wry Tail.—This is caused by contraction of the muscles of the tail on one side. It may sometimes be improved by a surgical operation, and should be considered a serious defect in any horse, and especially so in a driving horse.

5. Turning the Toe of the Hoof out or in Unduly, Sand Cracks, Quarter Cracks, Dish Hoofs, Over-reaching, Interfering, etc., are all to be looked for before finally buying a horse. They are all disabilities that should not be present where the purchaser pays full price for the animal. They are, however, all so apparent that the purchaser is to blame if he fails to see them.

6. Wolf Teeth.—These rudimentary teeth, which are found in some horses but not in mares, and which have been supposed by ignorant persons to produce blindness, and other diseases, are entirely harmless, except for the abrasion they sometime occasion to the tongue and cheeks. If they do so they are easily taken out by any sensible blacksmith. In fact it is quite well to extract them, not that they will produce serious disease, but simply because they are not of any value, are useless to the animal, and may occasion slight inconvenience.

7. Shying.—This is one of the most dangerous habits a horse can have, whether it be occasioned by cowardice—seldom the case; injudicious punishment is more common—or from defective eyesight, or from all these combined. If you are so unfortunate as to have a shying horse endeavor to break him of the vice by allowing him to examine objects of which he is afraid, by speaking soothingly to him, but never by whipping or spurring him. When he shows a disposition to shy turn his head to rather than from the object. Stop him; let him approach the object and touch it with his nose, for soon he will approach it himself. If simply caused by nerveousness, he may thus be cured. If caused by being short sighted there is no means of relief. Before you buy a horse be certain that he has not this infirmity, as dangerous an one as it is disagreeable. Such an animal is only fit to be driven by the side of another horse who will keep him to his work, and upon which he at length will come to depend, or of being driven as a wheeler in a team of four horses.

XII. Buying Cheap Horses.

I have endeavored to show some of the principal points to be considered in buying a horse, especially those relating to the use for which they are intended. There is one rule that will always apply in buying any horse. Never buy him because he is offered at a price evidently far below his worth, that is, except it be from a friend that you can trust, who does not want the horse himself, and wishes to do you a favor. These cases will be found very rare. In every other case rest assured the horse has some dangerous vice, or is permanently unsound. In this country never buy a horse at any price which has any appearance of broken knees by falling. Hunting horses are too rare here for one to have gotten the hurt in the field, and, accidentally, by being put at a barrier beyond his power.

Reject a horse with any weakness in his eyesight, unless you have use for a blind horse, then buy him at a blind horse's price. A one-eyed horse may do useful, but not elegant work. Never buy a lame horse at any price, until you are assured that the disability is not permanent.

Foot lameness, except it may be from a slight corn, and consequently curable, should be an insuperable bar to purchase. You can never patch up a bad foot. Therefore be sure you always try the intended purchase on a hard road. Many game horses, dead lame on hard roads, will get along without much flinching on soft roads, or the turf. If you are certain as to the cause of the lameness and know you can cure it, the purchase, as a speculation, may do; but never rely on the assurance of the horse dealer. It is his business to sell.

Never buy a narrow chested horse for hard service. It shows weak lungs and those liable to inflammation. If for saddle, avoid a very broad chested horse, though as trotters they are sometimes fast. The best and most perfect chest is a medium between the narrow and broad chest.

A tucked up washy looking horse should be avoided. They may indeed do for light work or short drives, but are totally unfit for real work.

In buying avoid all defects in the wind; be sure the disability has not been temporarily covered up, by special means known to horse dealers. A whistler or roarer may show no indication of his infirmity at a slow pace, or up to a certain speed. Beyond that it is apparent. Broken wind is an incurable infirmity and probably as distressing to the horse as the asthma is to man. A horse may make more or less noise and yet not have broken wind. Any indication of this, however, is to be looked on with suspicion.

In buying a horse his points of excellence and infirmity are better shown if only in fair working condition than when very fat. A horse very fat is pretty nearly a useless creature until his condition has been brought down to that of bone, sinew and muscle, with just sufficient fat to lubricate, so to speak, the working parts. Yet a horse for slow draft may be serviceable and carry far more flesh and fat than one used for fast work. Many superior horses have been ruined by hard driving when fat, or soft.

XIII. Color in Relation to Value.

It is a saying as trite as it is old that any color is good in a good horse. Yet a horse, however good otherwise, should be invariably rejected if his color is bad. For instance, it would essentially mark both an ignorant and vulgar person who would select a piebald, spotted, or otherwise extraordinary color for a carriage horse. It would savor of the circus or show ring.

As saddle horses for gentlemen, self-colors are the best, and those distinct. A star in the forehead and two white feet behind give character. A snip in the face, if large, is objectionable. Four white stockings more so. Bay, brown and dark chestnut are the preferable colors. If the horse is exceptionally stylish, black and dapple gray are good colors. Gray horses are often bad tempered, and black horses are not as a rule, docile. For ladies' use a dark cream color with white mane and tail, or that rare combination, a dark chestnut with darker tail and mane are elegant if of good form. So a strawberry roan, if unexceptionable in style and form, is elegant.

For single or double light driving, all distinct colors are good. Uneven or curiously marked horses are allowable in a fancy team—as a mismatch in distinct colors—as it is called. The colors should be distinct and in strong contrast, or else harmonious. A chestnut and a dark bay would be harmonious, and yet distinct colors. So would be a chestnut and a brown; a cream with white mane and tail, and a chestnut with dark mane and tail would show a marked contrast, and yet be elegant; so would be cream-colored horses so marked. A pure white and a jet black would be the most marked contrast possible, and not for a moment admissable, except both were faultless in form and style of going. Here in fact is where the fine art lies in teams of two distinct colors: Whatever the mismatch in color, the team should be as near alike in form and carriage as possible.

XIV. Action.

There are really but two styles of action: low, smooth, safe action, and high-stepping, showy action. The latter of little account except for parade and showing off on the road in connection with fine style. A high-stepping colt is as unsafe as he ungainly. The action that is slow and safe, and fast and safe, if combined in an animal is invaluable.

A horse with really good action moves all his limbs evenly, and brings his hind legs well under him at every movement. Some horses with round action in front—paddlers they are called—are often staunch and sure-footed, but this in spite of this action, not in consequence of it. Horses that straddle behind are often exceedingly fast trotters. Yet neither of these movements are what would be sought, either in a fine saddle horse or in a good harness horse.

XV. Fast-walking Horses.

I have before stated that a perfect and fast walking gait is not only indispensable to every horse, but the most valuable gait a horse could have for every day use. Yet we seldom see a horse that will walk four and a half or five miles an hour, even

when urged and in regular 1–2–3–4 time, nodding his head harmoniously in cadence. If a purchaser gets such a horse, or one that will do four miles under the saddle without stumbling, shuffling, dropping the step or breaking, be sure you have a good one at speed, if he has speed, for many great walkers are so broad chested that they cannot trot fast, and in galloping they will roll. Yet occasionally a horse will be found good at all gaits. When so, it is the result of exceptionably good form and careful training. He who can so train a horse, may get a long price for his trouble and skill.

XVI. What a Horse Should Be.

I have been very minute in stating the points of perfection in a horse, and have been particular in urging that the lungs, limbs and feet should be super-excellent. From one of the best authorities, I quote the following upon the physical structure of the horse, as describing physical perfection and perfect conformation.

"The points of the physical structure of a horse on which the most, indeed the whole of his utility depends, are his legs. Without his locomotors all the rest, however beautiful it may be, is worth nothing. Therefore, to these we look first. The fore-shoulder should be long, obliquely set, with a considerable slope, high in the withers and thin above. The upper arm should be very long and muscular, the knee broad, flat and bony, the shank, or cannon bone, as short as may be, flat, not round, with clean, firm sinews; the pastern joints moderately long and oblique, but not too much so, as the excess produces springiness and weakness; the hoofs firm, erect or deep, as opposed to flat, and the feet generally large and round. In the hind-legs the quarters should be large, powerful, broad when looked at in profile, and square and solid from behind. The hams should be sickle-shaped, not straight, and well let down, so as to bring the hocks well toward the ground. The hocks should be large and bony, straight, not angular and convexly curved in their posterior outlines; the shanks, corresponding to the cannon bones, short and flat, and the hind feet similar in form to the front. The back should be short above,

from the point of the withers and shoulder-blade, which ought to run well back to the croup. The barrel should be round, and for a horse in which strength and quickness are looked to more than great speed and stride, closely ribbed up. A horse can scarcely be too deep from the tip of his shoulder to the intersection of his fore-leg—which is called the heart-place—or too wide in the chest, as room in these parts gives free play to the most important vitals. The form of the neck and setting on of the head are essential not only to the beauty of the animal, but to the facility and pleasure of riding or driving him; hence, with an ill-shaped, short, stubborn neck, or ill set on head, the animal cannot by any possibility be a pleasant-mouthed horse, or an easy one to manage. The neck should be moderately long, convexly arched above from the shoulders to the crest, thin where it joins the head, and so set on that when yielding to the bit it forms a semi-circle, like a bended bow, and brings the chin downward and inward until it nearly touches the chest. Horses so made are always manageable to the hand. The converse of this neck, which is concave above and stuck out at the windpipe like a cock's wattle, is the worst possible form; and horses so made almost invariably throw up their heads at a pull, and the most exceptionable of brutes, *regular star-gazers*. The head should be rather small, bony, not beefy, in the jowl; broad between the eyes, and rather concave, or what is called basin-faced, than Roman-nosed, between the eyes and nostrils. The ears should be fine, small and pointed; the eyes large, clear and prominent, and the nostrils wide and well opened. A horse so framed cannot fail, if free from physical defects, constitutional disease and vice, to be a good one for any purpose—degree of strength, lightness and speed being weighed in accordance with the purpose for which he is desired."

The following form is a good one to use in purchasing a horse:

Received.....(insert place and date) *of Mr*.....(insert name)..... Dollars,.....*for*....(describe horse or mare, and pedigree of same, if any) .....*warranted*.....*years old*.....(state age).....*sound, free from vice, and quiet to ride or drive.*

When filled out this might read as follows:

Received, St. Louis, Mo., March 1st, 1880, of Mr. John Doe, five hundred dollars for a bay mare by Lancer, dam Lady, warranted five years old and under six years, sound, free from vice, and quiet to ride or drive.

RICHARD ROE.

This, with such careful examination as I have advised, ought to insure any buyer against danger in case the seller is solvent.

How to Feed, Water and Groom.

I. Laying the Foundation.

The feeding of horses must be either simple or complex according to the circumstances under which they are placed and the nature of the work required of them. It would, for instance, be as foolish with the farm or ordinary work horse to pamper with fire-warmed stables, highly stimulating food, and exquisite grooming, together with all the paraphernalia of blankets, hoods, bandages for the legs, and necessities of the trotting or racing stable, as it would be to allow this latter class to receive only the same care and attention usually bestowed upon the team kept solely for the plow and other drudgery of the farm. At the same time the extremes to which horses are subject, either in the farm or racing stables, might well be modified in very many cases to the health and well being either of the farm horse or the pampered and high-bred racer. That is to say, racers are often "drawn down" to fine, and the ordinary work horse too often suffers from neglect. Thus in the first class we see a number of diseases seldom shown in the stables of horses with sufficient care, while the stables of horses carefully kept seldom suffer with the class of diseases found when horses are allowed to go dirty from day to day, and often from week to week.

To commence at the beginning, the breeder who would succeed with any class of horses, should see that the mare, while carrying the foal, has sufficient food and shelter, and that the foal itself is sufficient nourished during the period of growth. Nothing is gained by insufficient shelter and food, whatever the use for which the animal is intended, and this brings us to the question of the food itself.

II. What to Feed.

In the West the feed of all horses of whatever class is oats, Indian corn, bran and hay. Whatever the work to be done, bran should always be kept, since a horse being off his feed, or slightly ailing from any cause not indicative of violent disease, bran mashes with good nursing will bring him out all right in nine cases out of ten. So, in the Winter when horses are confined to hard food, a bran-mash once a week should be given. On the farm there is nothing better than an occasional feed of roots—carrots, Swedish turnips, or mangel wurtzel—being valuable in the order named. If a peck of these could be given daily as an evening or noonday meal, the good effects of this feeding would be quickly shown. For the mares before foaling time, for the farm or draft horse, for the carriage horses of the citizen, and even for the fast driven roadster, or racer, when not being driven to exhaustive work, these will be found valuable.

The foal itself should be learned to eat roots as quickly as possible, and if the mare takes kindly to them it will not be a difficult matter for the foal to learn to eat them. As to the other food of the young colt or filly, oats alone with grass or hay, according to the season, should be allowed. In the Winter, half oats and half corn may be given with benefit, uuless the young things are intended for racing or trotting, and are kept in warm stables; then Indian corn would not be desirable, as being too heating under the circumstances.

For the ordinary farm team, or other horses of slow work, Indian corn may be the main dependence in Winter, in connection with good hay; especially so if a few roots can be allowed as a portion of the daily provender. For fast working horses, sound oats and hay will be the priciple dependence, but in the Winter I have always given one-third of the weight of the daily grain ration in Indian corn, and we have always thought, with decided benefit.

III. When to Feed.

The importance of strict regularity in feeding is underestimated by nine-tenths of the ordinary feeders, and by fully one-half of the stablemen having the care of well bred horses. The

horse, for whatever purpose he is used, if actively employed, should not get less than three feeds a day, besides the hay he eats during the night. All fast working horses should have four feeds a day. The hours of feeding are of prime importance. These should be, as closely as possible, at six in the morning, at noon, and at six at night, except at those pressing seasons of extra labor, when the morning feed may be an hour earlier and the evening feed an hour latter. In this case, however, nose-bags should be carried to the field, or they should be turned to the wagon at 10 A. M. and at 4 P. M. to take one-third their usual allowance, as given morning and evening, which meals, as a rule, should be rather more than the noonday feed. When corn is the main dependence as feed these lunches should be of oats, and if bruised so much the better.

Fast working horses should receive their food four times a day, at six in the morning, at ten, at two, and at nine at night. Carriage horses should be feed the same number of times, the first feed being at six, and the last after their real work for the day is done, say at nine at night, since simply going to some place of amusement at eleven o'clock or later can hardly be called work. The mid-morning and afternoon meals will depend upon the hours at which they are generally used, 9 A. M. and 1 P. M. begin the usual times for feeding.

IV. Watering.

Watering and the water used is of fully as much importance as the feeding. A horse is particular as to the water he drinks, but yet may be accustomed to any water without detriment if it be fit for human use. The water of large lakes, rivers and running brooks is best and in the order named. That of ponds without outlet or inlet the worst; in fact pond water should never be used; well water is altogether better and may be given without fear, when used constantly, but as with man, the horse accustomed to lake or river water, which is always partially soft, should be given well water, when necessity requires, with care and only in small quanties, the change being gradually made. Water should always be offered before feeding, and

never given in large drafts immediately after feeding; two to four quarts may be given with benefit immediately after dry feed, to properly moisten the stomach, and it may be freely given in two or three hours after feeding. When driving, water should be offered, especially in hot weather at every stop, but only a few quarts should be taken at a time, for a heated horse, like a heated man, will take more than is good for him. Upon stopping, wash the horse's mouth with a sponge soaked in water, and let him swallow each time two or three light sips, just enough to moisten the throat, and upon starting, give him four to six quarts each as the occasion seems to demand. Under no circumstance allow a heated horse to drink heartily. Farm teams and slow draft horses, at ordinary labor, may be allowed what they will naturally drink, but when heated the same rule must be observed as with hard driven horses. With these simple rules kept in view any intelligent owner or driver may keep his team fresh and without danger.

V. Kinds and Quantities of Food to be Given.

I have already spoken of the proper food to be given under ordinary circumstances; they are sound, whole grain, and bright, clean hay. Certain classes of horses, as omnibus horses, stage horses, car horses, and the draft horses of large mercantile firms in cities, are generally fed ground feed and cut hay. When the hours of feeding and rest may be estimated with accuracy, this is on the whole as conducive to the health of the animal as may be, when the economy of such feeding is considered, especially when we remember that in large cities a regular veterinary surgeon is employed, who visits the stables regularly to look after the well-being of the horses, and also where the superintendents and foremen are supposed to be experts.

On the farm, and in the stables of road-driving horsemen, and where carriage horses are kept, cut feed may very properly and economically form from one-third to one-half of the daily food given. When only one feed is given it should be in the morning; when two are given, they should be the morning and evening feeds.

As to the quantity to be given, no definite rule can be laid down. The horse must have a quantity fully sufficient to keep him well up to his work. Hard working horses may, if regularly fed, have what grain and hay they will eat clean, and in this case there is no better judge than the animal itself, except in the case of ravenous gluttons, sometimes found among horses as in the human family. Elaborate rules have been laid down by theorists, including a per cent. of grain according to the weight of the animal. In practice they will not work, since the labor, condition of the animal, temperature of the season, and of stables must be considered. In the large omnibus stables where all the work is to be got out of horses that they can endure, from ten to fourteen pounds of cut hay per day are given, with from eighteen to twenty pounds of corn meal. Mix into provender, and on it they will go from eighteen to twenty miles each day. With this about three pounds of salt may be allowed each month. Some stablemen do not feed more than one pound, arguing that a large quantity produces profuse staling; others feed up to four. In times of extra severe labor the cornmeal is increased by about three pounds. It would be better if the three pounds of meal were omitted and one extra feed of six quarts of whole oats be substituted, and given daily. The average livery horse may be kept in good condition on twelve pounds of hay and eight pounds of cornmeal daily, to be given at two feeds with the addition of six quarts of oats at noon, eight pounds of hay to be fed cut, with the meal, and four pounds from the manger. This same feed would do for ordinary farm horses at usual work, or if the grain is fed whole, five quarts of shelled corn, or its equivalent in ears, and six quarts of oats, with what hay will be eaten should keep the animal in working condition.

VI. How to Prepare the Food.

In preparing chopped feed, half the hay to be used, or clean, bright, long straw cut into about three-quarters to one inch lengths, should be put into the mixing trough half an hour before it is to be mixed, and thoroughly moistened. On this throw the meal, mill-feed, or whatever article is to be used, and moisten it.

Then cover with sufficient hay to make the mess for the desired number of horses, weighing both hay and meal. Let it stand until feeding time, when the whole should be worked over and over until thoroughly mixed. If salt is given with the mess, put in the required quantity for each horse, from one-quarter to half an ounce per horse each feed. Many stablemen mix the mess half a day in advance, but this we do not like. Horses, like men, like their food fresh. An iron box is best for mixing, and it should be thoroughly cleaned after each meal.

VII. How to Make Mashes, Gruel and Hay-tea.

The ordinary sweet mash, as usually made, is to take four quarts of good bran, moisten it gradually with hot water, and then mix with what boiling water will bring it up to the proper consistency for eating, covering it with a cloth and feeding either warm or cold as the animal will eat it. What salt will lie on a quarter dollar may or may not be mixed with it.

A better mash, especially for dry fed horses, is to boil two quarts of oats and a pint of linseed, for each horse, for about three hours, and then mix with it sufficient bran to bring it to a proper consistency. Cover with a cloth and feed cold. Such a mash given once a week, if the horses are on average feed, will keep their bowels in condition. If off their feed, add a little salt, and a half pint of molasses.

Gruel is one of the best possible things for a beaten out horse. Stir gradually in a gallon of water, a pint or a quart of oat-meal, or half flour and half corn-meal, according as the horse likes it thick or thin, and fill up the pail with cold water. If the horse hesitates about drinking it, give him first a mouthful of water. If he be very tired a quart of sound ale will do him good, but under *no circumstances*, when exhausted, should he be given a feed either of grain or hay. If the horse will take nothing else, turn down a bottle of sound ale, rub him until dry and refreshed, and then feed.

Hay tea is also a good stimulant. To make it—fill a bucket three-quarters full of bright, clean hay, pour over it enough boil-

ing water to fill the pail, and cover tight, to keep in the steam. Press the hay down occasionally, let it stand fifteen minutes, turn off, and add water enough to make a bucket three-quarters full. Give to the horse when the liquid is cool enough to drink.

VIII. The Value of Hay and Straw.

In the feeding of horses the principal use of hay is to distend the stomach. For this reason lean horses, and those just off the pasture on coarse feed, require more than those which are regularly stabled and groomed. The change to grain must not be too sudden, else indigestion is apt to set in. Once a horse is used to full rations of grain, if oats are used, or corn meal and bran, he may get along daily with from six to eight pounds of hay a day. The hay, however, must be of the very best, bright, clean and free from dust. There is no economy in feeding bad hay. It is the cause of heaves, broken wind and other diseases produced by indigestion. Good clean straw is altogether better than poor hay. Straw is altogether the best material for bedding, and should always be used when it can be had. In the West it is plenty, and yet not one farmer in ten uses it for bedding in sufficient quantity, or renews it often enough.

IX. Feeding Grain.

The most economical way of feeding grain is in its whole state. Oats and corn should be shaken in a sieve with a mesh so small that it will not go through, all dust and light matter blown away, and all stones, bits of iron or wire, carefully picked out. It will pay to do this. In feeding corn allow one-half the measure of shelled corn that would be deemed sufficient of oats, since corn weighs about double that of oats. If corn in the ear is fed, one-third more by measure heaped should be allowed than when shelled grain is used.

Some horses eat their grain better for being moistened. Horses with bad teeth always bolt their food whole. All such horses, and also aged ones, should be fed cut hay and ground feed.

X. Stable Care and Training.

The importance of steadiness and care in the management of the stable and in the cleaning of horses cannot be over-estimated. A brutal stableman, or one which a horse fears, should be immediately discharged. There is indeed now and then a horse that requires to be kept in terror. These of course are exceptions. The competent stable-man should use neither fear nor brutality.

Many stable-men imagine the curry comb is an instrument for cleaning the legs and body of the horse. It is an instrument for cleaning the brush and for loosening the scurf on the fleshy—not bony—parts of the body. In using the curry comb, do so lightly, carrying it in circles rather than in straight lines. Use a wisp of hay for rubbing the dust from the legs, and something like a corn cob for the fetlocks, finishing with the brush. In brushing, do so thoroughly, with firm, long strokes, where possible, being careful in working about the head and bony parts. Clean the brush often by passing it over the teeth of the curry comb. When the scurf and dust are thoroughly cleaned out, go over the horse with a damp wisp of hay, and finish with dry cloths, being particular to get any particles of dirt out of the fetlocks, the ears, about the head, next the tail, below the thighs, under the jaws, and between the fore-legs. A horse thus cleaned, whether he belongs to the farm or the city stable will not occasion shame on the part of the owner.

It is a question among horsemen, whether when a team comes in wet and muddy at night, it is proper to wash them. We have never found advantage in so doing. Clothe them warmly, bandage the legs loosely, and when dry, clean them, at least so far as removing the dirt, and getting up a glow at the surface is concerned. Thus handled, horses will seldom be found liable to surfeit, scratches, grease, and other diseases induced by checking the natural perspiration.

XI. The Time to Clean.

Clean when the horse is dirty. Always once a day when the horse is kept in the stable. Horses that run in the fields in Summer, or in the shed yard in Winter require no cleaning.

Before work horses are littered down for the night they should be again thoroughly cleaned if necessary.

Whenever the horse comes into the stable from the plow or wagon, for the day, he should be thoroughly cleaned *when dry enough*, and if sweating or otherwise wet should be thoroughly scraped at once. The scraper is a thin, flexible piece of wood; a section of barrel hoop makes a good one.

XII. Care of the Feet.

The feet are half the horse, in fact a horse with bad feet, is as near a worthless animal as possible. Attention to the feet is therefore of the first importance. In this connection shoeing is to be attended to. Know that the blacksmith understands his business. The horse's foot should be a study, and every horseman should understand the anatomy of the foot. When the horse is brought in from work, each foot should be lifted, cleaned, and examined with the picker to see that no gravel or other hard substance has found lodgment between the shoe and hoof, or about the frog. Examine the frog to see that no substance is wedged therein, and that no nail or other sharp object has pierced the sole. If the hoofs are inclined to be hard and dry, fill them with a mixture of cow-dung and clay, or with oakum saturated with tar and petroleum. Watch them for contraction of the hoof, caused by allowing the shoe to remain on too long, or from bad shoeing. If the frog gets torn and ragged, cut the ragged edges but leave the frog intact. If the hoof be found pierced with a nail, and you are not perfectly sure you have pulled out every bit, cut it out at whatever labor it may be to you, or pain to the animal. Then dress the wound with tow saturated with tar. If the hoofs are inclined to be hard and brittle, oil them occasionally, or let the horse stand, say for an hour or two, or for a half a day on Sunday, in a box-stall of soft clay and cow-manure, coming pretty well up the hoofs.

XIII. Blanketing—When Necessary.

A blanket is always necessary when a horse is standing in the stable in Winter. A light sheet is about as necessary in Summer, during fly time A blanket should always be thrown over the

horse in cold weather, or even in the cool weather of Spring and Autumn, when standing after being driven. A horse should always be blanketed when standing in a draft, or in the rain, using a cloth or rubber blanket as the case may be. In blanketing a horse, see that the blanket is sufficiently large to cover the animal from the neck to the tail, see also that the breast flaps are sufficient to protect this sensitive part, and that the blanket is large enough to cover the sides and flank fully. If not do not buy it at any price.

XIV. Proper Tools for the Stable.

The tools necessary for cleaning a horse properly may be very few or many. As a rule any horse may be properly cleaned with a scraper, a curry comb, a brush, a sponge, a comb, a wisp of straw, and a rubbing cloth. Horse pails both for washing the horse and for watering are indispensable to any stable but never use one for the other. These should be of oak, half an inch thick, and with strong iron bails, and to hold fourteen quarts. Every stable should have two manure forks, one of steel and one of wood, splint broom, a scoop shovel, and a wheel-barrow.

Breeding and Raising Horses.

I. Importance of the Subject.

No subject connected with the rearing and use of stock can be of more importance to the farmer and stock-grower, the intelligent, practical business man, than that of breeding. That it is in every way more profitable to any one who rears and trains a single colt to have that colt of the very best rather than of any indifferent quality is almost too palpable to need a moment's consideration. That it is possible for every man of observation and good judgment to improve his stock is equally obvious. There is no line of work which horses are called upon to perform that has not its peculiar requirements, that can be better met by some specific kind of animal than by one chosen at haphazard. It is a matter, then, of the plainest common sense that every one who means to rear a horse for his own use should consider beforehand to what purposes he will most probably devote it. If it is designed for market, he needs no less to consult his interests by determining what markets are accessible to him, and what description of animal will be apt to find most ready sale therein, at most remunerative prices.

For the farmer who wants to breed and rear horses of all work, it would be manifestly foolish to seek a high-priced pure-blooded race, for his mares, unless the mares themselves were of such type as to render it necessary to breed to high and elegant stallions in order to obtain those medium-sized, but compact, and moderately quick-paced animals that are so well adapted to all the wants of the farmer.

On the other hand, one wanting a light and fleet animal would show his lack of judgment in a striking manner who should so disregard all the dictates of sound sense as to hope to succeed by any chance selection of either mares or stallions.

The Best Stock the Cheapest.

It may be laid down as the first rule—a foundation principle—that *the very best and purest stock that is really adapted to the end in view should be sought after.*

It costs even less to feed a horse of good blood and lineage than it does to maintain a scrub; it costs no more to shelter him; it costs less to groom him and keep him in condition than it does to keep the scrub from looking like a scare-crow; his movement is almost invariably smoother and steadier for the same rates of speed; his temper is generally better; his pluck and energy not less so; and if it is found necessary to put him upon the market, he brings a better price. The service of a stallion known to be of good, generous blood, and possessing adequate powers of transmission, must of course cost more; there must be a dam adapted to the obtaining of a foal of the best type possible from such a sire; but the penny-wise, pound-foolish policy of refusing to avail one's self of these advantages, when in the bounds of possibility, is too apparent.

Taking it for granted, then, that the best, in this case, is always the cheapest—that the finer and purer the horse can be, other things being equal, the more useful, more easily maintained and more marketable he is bound to be, it remains to consider some points that must always be regarded by the intelligent breeder, who seeks wisely to adapt means to ends rather than trust to chance.

III. Hereditary Tendencies and Immaturity to be guarded Against.

A caution most needful to be insisted upon at the outset is that relating to the transmission of tendencies to disease and of actual disease itself. It seems that no man in his right senses, knowing the results to the human family when this consideration is disregarded, would think for a moment of utterly ignoring the possibilities of evil consequences; but ordinary observation leads to the disclosure of the fact that among horses diseases and impaired constitutional powers are often transmitted in this way.

Mares at an advanced age, too stiff, too weak, too slow to be of any further active use, are turned to account for breeding purposes—and the result is, a weak foal, lacking thrift and lacking spirit. Mares hacked about until they are ring-boned, spavined, and splinted, or perhaps dropsical or with a glanderous tendency,—no longer useful on the farm or on the road, are relieved from the work which they can no longer do with any chance of profit, and sent to the stallion. Result: a foal with a rickety or knotty bony system, or with a tendency to some form of dropsy, or ready, in the presence of any exciting cause, to develop a case of glanders. And so of other disorders, more especially of roaring, thick-wind, blindness, contracted feet, grease and affections of the brain and nervous system. Some mares have a peculiar predisposition to surfeit, some to swelled legs, some to vertigo, some to a sort of unaccountable viciousness. No wise breeder can afford to disregard these things. If he wishes to rear a horse for service, he wants a sound foal; for he knows he can get from such a one more work for less cost than from one unsound in bone, muscle, secretions or integument. If he designs to breed for market he is aware that neither a puny nor a diseased creature can be palmed off there either to his profit or his credit.

To insure healthy, active, thrifty progeny, then, the dam must be *soumd and vigorous;* and this is no less true of the sire. We dwell less upon the latter because it is of far less frequent occurrence for a broken down and diseased stallion to be kept for the service of mares than for mares of this description to be put to breeding because they are known to be fit for nothing else, but are erroneously deemed useful for this. The condition of the stallion, however, must not be overlooked. Every breeder must have a care to choose a vigorous stallion, and one free from blemishes, malformation and hereditary taints.

Nor should mares be put to breeding too young. They should be full grown and vigorous, and when their powers begin to fail they should no longer be subjected to this service. It is the practice of some to begin to breed at two years of age. This is injurious to the mare, and otherwise unprofitable to the owner.

The growth of the mare is hindered; her form is modified both by the weight of the stallion and by carrying the foal. And the foal itself is apt to lack fullness and power. Yet, it takes from the young mother that sustenance which she needs for her own development, so that she is dwarfed, while it grows up a more or less puny creature—of insufficient value to compensate for the injury done to the dam. No mare should be so used till she is at least three years old—four would be the better and more profitable age. It is said that mares which are allowed to mature, and are well treated afterwards, will not lose enough of their natural vigor to disqualify them for bringing forth good foals till after they are twenty years old; but it is idle to expect good strong, well-formed, thrifty, and spirited offspring from a mare that is either too young or too old; or that is subjected, even in maturity, to hard work, poor and insufficient food, and cruel handling.

IV. Principles of Transmission.

Let us next notice this principle, that *when the dam and the sire both possess a due amount of vigor, the foal will combine in itself the most marked characteristics of both, while any quality that is peculiar to either of them is apt to be prominent in the offspring.* This applies to both disposition and physical conformation.

It will be seen from this statement that no matter what the general line of policy to be pursued by the breeder; that of *in-and-in*, or that of *crossing*, he must select his stallions and mares with the view to having one supplement the other. If the mare is deficient in any point, the horse should be full or predominant there, and *vice versa;* and if any peculiar trait is desired, that should be very strongly developed in either sire or dam, while merely nominal in the other.

Another special point to be considered is this: that for the production of a full-formed, symmetrical, vigorous, and thrifty foal, *the mare should be proportionately larger than the horse.* An overgrown stallion, of great power, serving a mare of diminutive size, or of size somewhat less in proportion than his own, will beget her a strong embryo that will require more room and more nourishment than the mare can afford; and the result must be weakness

and, probably, deformity—almost inevitably diminutive size. Men's minds were particularly called to this fact in Great Britian when, during a course of years, the farmers of Yorkshire thought that by breeding their mares to the very largest stallions they could find, and without regard to the size of the mare, they could meet the demand in London for great overgrown horses, which it was then the fashion to drive in coaches and other heavy carriages. The result was a race of almost worthless creatures.

In other points than mere size, more depends upon the selection of the mare than that of the horse. The great majority are mares bred after their own stock unless the stallion is so powerful as to neutralize or overcome this physiological peculiarity; so that it is necessary for her to be of good lineage if the best results are wanted. If she has come from diseased, vicious, or in any way evil ancestry, though she may be free from perceptible taint, the bad points of her stock will very probably appear in her offspring. This principle makes it necessary to have a regard for her color and for the color that is known to have been prevalent in her line, since any dirty, vari-tinted, and otherwise disagreeable colors may appear in a foal of hers if her progenitors have had such a hue.

V. The Two Methods, "In-and-in" and "Cross" Breeding Considered.

As for the two leading methods of breeding, circumstances generally determine which the farmer or other breeder on a moderate scale is to adopt. He is now almost always under the absolute necessity of crossing; and the main point with him is, *how* to cross, in order to secure the best results. The main directions are already laid down, with sufficient minuteness to enable anyone of ordinary intelligence to judge as to the best means. One point must not be overlooked, that really to improve the stock of horses as to blood—to obtain a strain that has the power of transmitting itself, and of so continuing in a steady line of improvement, recourse must be had to pure blooded horses. The English racer or thoroughbred is almost our sole reliance in this respect: although an Arab may occasionally be found. The

true Norman Percheron is endowed with this characteristic of pure-blooded horses—he has great powers of impressing himself upon his offspring, and perpetuating the strain; but he is too heavy for the ordinary run of mares in this country, and if heavy draft stock rather than the lighter horse of all work is wanted, the Percheron mare should also be used—or some other of equal length and weight. Good mares of the common mixed breeds in the United States, bred to the light Arab, Barb, or thorough-bred stallions, will almost invariably produce foals partaking of their own size and strength, and of the finer forms, activity, and wind of the stallion. It is difficult to lay down any specific rule for crossing. The whole matter must be left to the good sense of the breeder, after the general statement of principles set forth. If the breeder has in view a mere racer, and is unable to obtain both thorough-bred mare and stallion, let him seek the racing stallion, at least, and one that will, as previously directed, supplement his mare—supply the points in which she is wanting for that specific purpose. If he wishes a trotter, the same care must be observed. Trotting horses are of late days in great demand throughout the United States.

"Gold Dust," was a Kentucky horse, foaled near Lexington, the property of L. L. Dorsey, a few years prior to the civil war. He was mixed blooded, having been sired by Vermont Morgan, a great trotter, while his dam had in her both Arabian and thoroughbred blood.

It is worthy of consideration on the part of the breeder that the colts of "Gold Dust" showed stronger marks of their Arabian and English ancestry, which came by his dam's side, than of the Morgan, his sire, so superior is the pure blooded horse as a transmitter of his own qualities, and an improver of breed, "Gold Dust" is worthy of study. He was not only beautiful, but a horse of the finest action—a fast walker and famous as a trotter. When native American stallions such as he could be found, the owner of good mares need not repine if he finds it impossible to come at the much-to-be-desired pure blooded foreigner. He may rest assured of getting improved colts, and of such character as will, if judiciously handled, perpetuate, to

some extent at least, their own good qualities. Such horses are to be found in these days. The common sense of the breeder will select them.

If it is heavy draft stock that is to be sought, the Norman Percheron stallion, as we have previously intimated, ought to be had, provided the breeder has mares of such size as to render it judicious to put them to so large a horse; otherwise, the Norman Percheron mare may be most advantageously bred to some native stallion, say a Morgan a good Canadian, or some other compactly built and quick-paced horse.

But it is unnecessary to extend these suggestions. If the breeder will consider with care what he really wants, and observe the points upon which we have touched, he will be at no loss to judge intelligently what course to pursue when cross-breeding is his only resource. He may often, of course, find it difficult to obtain just the stallion which his judgment tells him he should have for his class of mares; but this is a pointed argument in favor of that care which our farmers should long ago have exercised in this matter. Intelligent attention to the improvement of our stock throughout the Union will soon make it possible for them to *select* their stallions, rather than be forced to take up with every hack that comes along with a flourish of red surcingles and a wonderful pedigree, manufactured to order.

As to in-and-in breeding, but little need be said. All the long winded, voluminous, and learned discussions of the subject have resulted in adding but little more to our stock of knowledge than this: that too close in-and-in breeding is likely to bring about weakness, malformation, and general deterioration; but that to fix and preserve and intensify a certain strain, the Jew, (to speak in a figure), must not intermarry with the heathens round about him. In other words, to have true Morgans, both sire and dam must be of that stock, though of different families: to keep up the real Norman Percheron horse, we must have Norman Percherons, both male and female, to breed from; and so on.

The objection to close in-and-in breeding seems to be here: that nearness of kin is apt to be associated with likeness of qualities,

both physical and mental (if we may so speak of the horse); and thus the great requirement that one parent must supplement the other is not complied with. If there is a weak point in both, the weakness is perpetuated and made worse, whereas, a weak point in one should be counteracted by a correspondingly strong point in the other. If it could be known with absolute certainly that two animals, close of kin, had strongly marked opposite traits of character, constitution and conformation, they might be bred to each other, and with the best results. Such is sometimes the case; but it is not likely to be, and the rule should be as we have said—let the strain be the same, but the kinship as far removed as possible. This is believed by the most candid observers to be the secret of Arab success. The individual breeder knows not alone his own animals, but those of his tribe, and of other tribes as well. Moreover, the Arabs are close observers and astute judges of horse flesh, and an intelligent son of the Desert could by no reasonable means be induced to breed his mare to a stallion in which his eye had marked some weakness or evil tendency which he knew the mare likewise to possess, however slight the indicatious might be in either.

Then, to recapitulate briefly: if the breeder has it in his power to keep up a certain stock, let him guard against the slightest admixture of heathen blood; and to be as sure as possible of no evil results, let him look to securing sires and dams as widely removed from kinship as possible; but he can never afford to disregard the point previously so much insisted upon, as a principle to be observed in crossing, that if either parent has a fault, the other must be correspondingly strong there.

VI. Treatment of the Mare after being Served, During Pregnancy, Etc.

It is proper next to notice some little matters of detail in connection with the management of brood mares.

Forty-four weeks is regarded as the time which a mare goes with foal; but this must be taken as mean time, since one occasionally brings forth a perfect colt four or five weeks sooner, and

others will go equally as long beyond this period. When once the time of a mare is known, the breeder can generally regulate her going to the horse so as to have the colt appear at whatever season he considers most desirable, but without this knowledge he cannot

After having being served by a horse, the mare should be allowed to stand idle awhile, as conception will be far more apt to take place if she is left to herself. If put to brisk motion, or to any strain immediately after copulation, she is apt to fail of conception. She should also be kept away from string-proud or badly castrated geldings, not only at this period, but during her entire pregnancy, as they are apt to worry her to the casting of the conception, or, at a later period, to slinking the foal.

After she has been allowed a reasonable season of quiet, moderate work will be rather beneficial than injurious; and this may be kept up until about the time for foaling. Special care should always be exercised to guard her against being kicked, heavily thrown, or inordinately strained in any way.

It sometimes occurs that at the time of foaling, a false presentation is made, producing difficulty of delivery; but no reliable instructions can be here given as to what course to pursue in these cases; and it is best to seek the aid of some skillful veterinary surgeon.

The mare which has had a colt will be found in season sometime within the next thirty days, and she ought to go to the horse at this time if she is to be bred at all. The ninth day after foaling will generally be found to be the right time. Whenever indications of heat are discovered, the matter should not be delayed, as the season may pass off and not return. After putting, the days of trail are the ninth, then, if she refuses, the seventh after this, and upon a second refusal, the fifth after this, which is sufficient to prove her.

VII. How to Know whether a Mare is in Foal.

It is often important for both breeders and traders to know whether a mare is really in foal; and one prominent writer has published the following directions for determining this point, which he says may be implicitly relied on:

"After the first service of the horse, and before the next trial, on examining the vagina, or bearing, if conception has *not* taken place it will be of a fresh, bright, or florid and moist appearance, with a clear drop appearing at the lower part, and which, if touched will incline to extend; but if conception is present, a different appearance of the surface of the vagina will be presented. It will be found dry, and of a dirty brown or rust color; and a dark, brown looking drop will replace the former clear drop. When these latter appearances are present, pregnancy may be regarded as certain."

VIII. How to Know Time of Foaling.

Two days (in some mares only one), before foaling, a sort of sticky substances will be found protruding from each teat, somewhat resembling drops of milk. Care should now be taken to provide a suitable place for her, as this is a certain indication of near delivery. She should be removed from other animals, and a carefnl person should see to her often enough to guard against accidents.

Before the signs referred to, as shown by the teats, however, there is on each side of the spinal column, from the tail to the haunch, a furrow-like fold; and the bag will generally be found considerably increased in size. These signs show that delivery is not very remote, but cannot be relied on to denote the day.

IX. Abortion, or Slinking the Foal.

When about half the time of pregnancy is passed, more than ordinary pains should be taken with the mare, as it is at this time, if at all, that she is apt to slink. She ought now to have better feeding, and even gentler handling than she had previously; though at all times the owner but consults his own interests when he carefully guards her against ill usage. She has more need of food, and is less able, at this time, to endure hunger, as the rapid growth of the fœtus makes a constant and severe draft upon her system. What of care may cause abor-

tion; and if a mare once casts her foal, she is apt to do so at a corresponding period of pregnancy afterwards,—more especially if like provocation occurs.

Various other causes of abortion, some of which may be briefly referred to, for the purpose of pointing out certain preventive measures and suggesting others. Blows, strains, and any violent excitement may have this effect; and it is said that to allow a mare to see and smell food to which she has been accustomed, and of which she is fond, without suffering her to eat of it, will cause slinking. Feeding hogs or other stock upon corn in sight of a mare that is not also thus fed, is, for this reason dangerous. Sympathy, is a known cause: a pregnant mare, seeing another cast her foal, is apt to be affected in like manner. Nervous spasms, or a sort of animal hysteria, resulting from sympathy of the womb with a diseased stomach or other organ, occasionally results in causing the foal to be cast. Some affirm that a smell of blood, or of freshly slaughtered meat, will do it.

If a mare slinks because of a hurt, a strain, or some acute attack of disease, she is not apt to fall into the habit of abortion, provided proper care is taken to guard against exciting causes at a corresponding period of her next pregnancy.

When once this tendency is established, however, it is difficult to counteract it, as the slinking is more than likely to take place at times when the mare is not under observation. If symptons of casting chance to be discovered in time, it may be prevented by promptly burning pigeon feathers (or those of other birds, if these cannot be obtained), on a hot pan, or a pan of coals, and holding them so that she will be obliged to inhale the smoke.

X. How to Raise Colts.

If the colt is healthy and thriving, he should be weaned at from five to six months old. If allowed to run with the dam after this period, he is an unnecessary burden to her, since he has already learned to pick up and devote to his own use other sustenance, and he may most judiciously be taken away. If at this time the dam is still inclined to furnish milk so copiously as to render the udder painful to her, she should be looked

after for a few days, to see that the over fullness does not result in inflammation and swelling. If necessary, draw away the milk by hand once a day for three days. It is a good plan to keep her at this time on dryer food than usual, and at more than ordinarily steady work. This course will tend to prevent the secretion of the usual quantity of milk, and the udder will soon be dry.

No matter how well born a colt may be he can never amount to anything if raised a starveling. If the dam is what she should be, he will have been furnished with abundant sustenance from the time of conception to that of delivery, which is one of the secrets of full-formed, finely-proportioned, vigorous foals. From foal-time to weaning he will have been kept vigorous and growing by the quantity and character of the milk furnishd him, together with such little food as he has early learned to partake of at the manger and in the pasture of the dam. And, now upon being weaned, it is of the utmost importance that he have liberal food and sufficient protection from the inclemencies of the weather. This must be carefully attended to during the whole period of growth if he is expected to make any adequate return to the owner. Bruised oats and bran have been recommended as the very best food to be given for a considerable time after weaning. In any event let his food be supplied with regularity; and it must be nutritious, yet of such kind and so disposed as to be easily taken.

He should not be stabled too much, nor in any other way too closely confined—being allowed all that range and exposure to out-door weather common to older stock in the more clement seasons; but he should never be left out in cool rains nor in the storms and biting cold of Winter. If a place is provided in which he may always shelter himself when the condition of the weather inclines him to seek cover, it will save trouble and yet insure a natural growth and that hardihood which comes of sufficient contact with cold and heat. For this purpose a straw rick is sometimes recommended—so coustructed as to furnish shelter on the side. This will give at the same time bedding and a light species of food.

Provisions must of course be made for his obtaining readily, and at such times as the wants of nature may dictate, plenty of pure water—the purer the better.

Thus much as to food, drink, and shelter. Another point of importance must not be omitted in his raising, that is, familiarizing him with his master or with whomsoever has charge of him. He should be handled sufficiently and in such a way as thoroughly to overcome all shyness, and to lead him to feel that man is his friend. This confidence once established, his training —when the proper time comes for that—will be easily and successfully accomplished; his subsequent relations with his master will be always pleasant, and his value thereby much enhanced.

And this, indeed, touches a fundamental principle in the care of all dumb beasts. Lead them to recognize that man is their friend; that they can depend on him to advance their comforts and to secure their welfare.

XI. Mules.

The breeding and rearing of mules, so common in many portions of the United States, requires more than a passing consideration. To obtain the best results in crossing with the ass demands as much intelligent care as in the case of the horse; and the mule-breeder will find it much to his advantage thoroughly to inform himself as to how these results are to be obtained.

Many mistaken impressions prevail as to the relative usefulness of the mule, as compared with the cost of breeding and maintenance.

It is thought by the inexperienced that he is almost equally adapted to every kind of draft work to which the horse may be put; that his power as a pack-animal is much greater than that of the horse; that his endurance is greater; that he can subsist on less food; and that he demands every way less care. All these things are set down to his advantage; but in most instances the impressions are wholly erroneous. As a general thing, he is not well adapted to road or to city purposes at all. Especially are hard roads and pavements destructive to him if he is large of body and disproportionately small of leg. He is not so stout as

a horse of proportionate size; he is utterly incapable of carrying so great burdens as some have represented, even if loaded and attended by experienced packers,—particularly if the journey is to be continuous and the roads are at all heavy; his powers of endurance are not greater than those of the hardier kind of horses; he will consume as much food as a horse of proportionate size, if required to do like work and to maintain a like condition; and as to care, he can do without it—so can a horse—but both fail thereby of that eminent thriftiness, sprightliness and longevity which is expected of animals to which it is extended.

On the other hand, and to his discredit, it is commonly thought that he is naturally vicious, and wholly incapable of appreciating kindly treatment—that the only way to control him is by violence. Hence, those who handle him generally feel as though they are justifiable in whipping, beating, kicking and whatsoever other cruelties they may choose to inflict. This is a grievous, foolish and wicked mistake. The mule has one means of defense, and his heels are dangerous to those who wantonly provoke or startle him and place themselves in his way. His long ears are sensitive, and by roughly handling them his combativeness is easily aroused, and distrust is awakened to that degree that renders him almost unmanageable. Yet, the mule may be so raised and trained as to make him gentle, obedient, even affectionate and ready to follow his master like a dog—so trusty that only the one always necessary precaution need be observed in dealing with him—to keep out of the way of his heels, which he throws out as instinctively when startled, irritated or approached by a stranger, as a cat thrusts out her claws. It has been remarked that "when a mule gets perfectly gentle, he is unfit for service" and that, taken in connection with the prevailing method of training him, is doubtless true; but there is a better way, and, if followed, it would result as we have stated above.

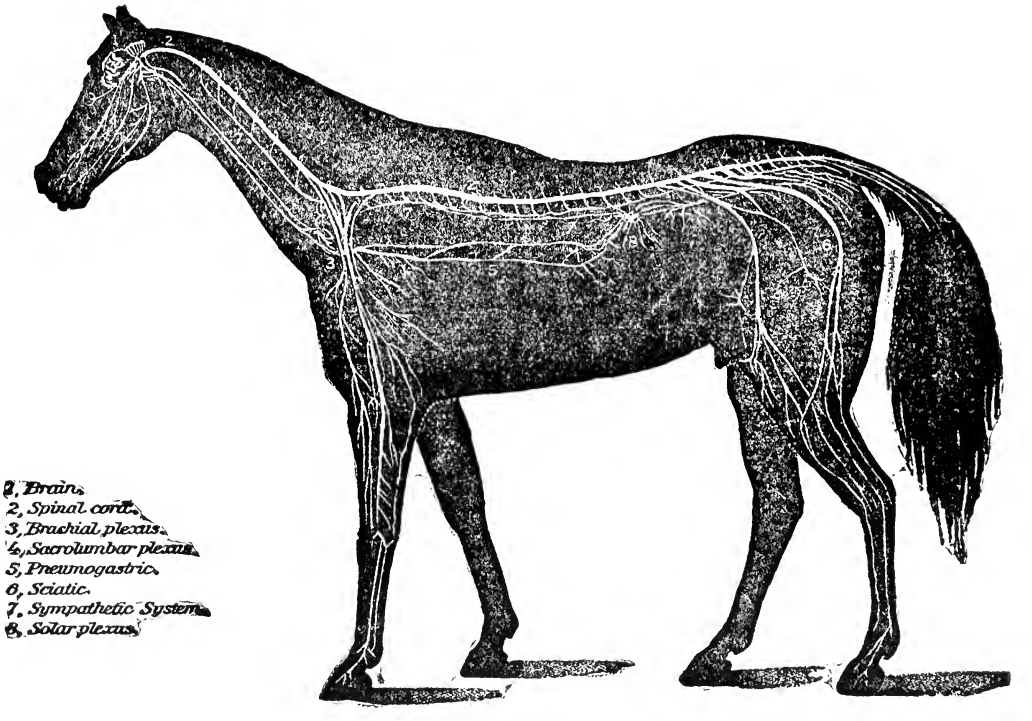
Now, while the mule is not adapted to everything, and endowed with powers that are adequate to endure starvation and brutal treatment while in the performance of hard and faithful service, he is admirably calculated to meet many of the wants of individuals and corporations; and his breeding, rearing and training are

matters for intelligent consideration. For supplying the army he cannot be replaced; for towing canal boats he answers admirably; for hauling cars inside of coal mines, he is indispensable; for the general knock-about work of a farm he is good in all temperate climates; and in a cotton and sugar country, where it is warm and sandy, he is most especially valuable. Though he cannot endure everything and still meet every requirement of a heartless task-master, he is yet gifted with a hardihood that is admirable, and recuperative powers that are astonishing. Seemingly half dead, utterly broken down and worthless, he will, with a little rest and care, soon be again ready for service.

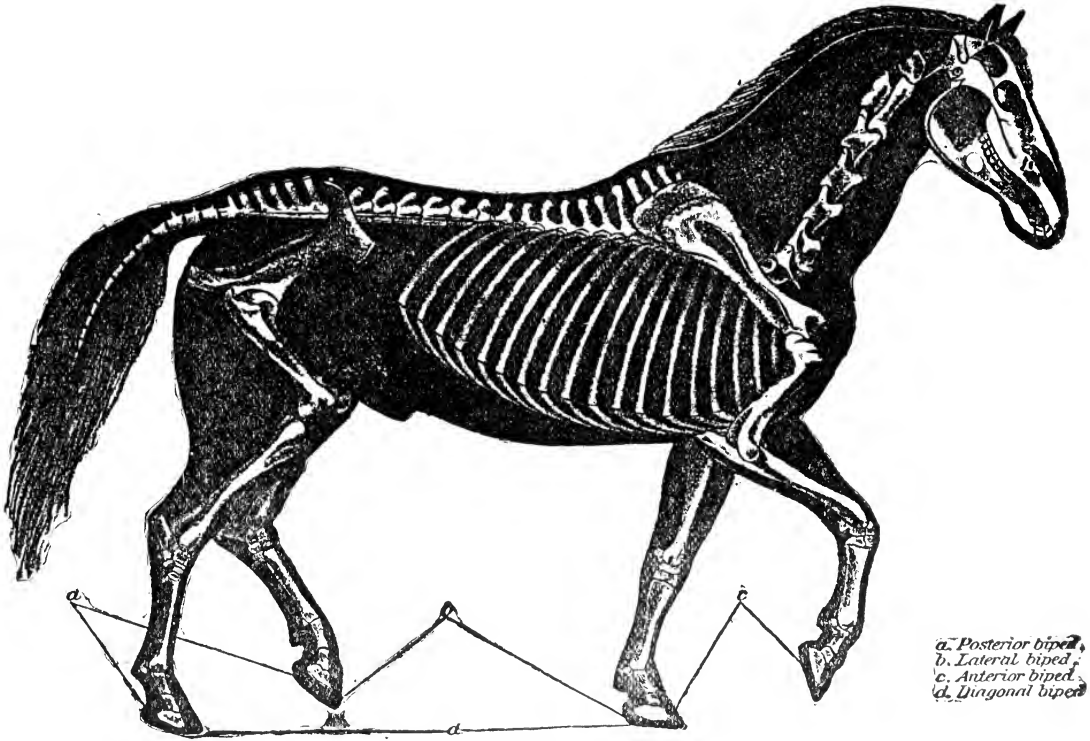
In breeding for mules no less attention should be paid to the selection of suitable mares and a suitable jack than in the case of horses. It is folly to use old, worn-out, diseased, ill-formed, ill-conditioned mares, and yet hope to obtain a good foal. As a general thing, a great, overgrown, long-legged mule is next to worthless. He is expensive to keep and unreliable as a worker—lacking wind, strength and nimbleness. The medium-sized, clean, compact mule is by all odds the best, unless a team can be found to combine more than the ordinary height with round bodies, not disposed to fleshiness, and larger, stronger legs than usual, with feet above the common size—which is seldom the case. The Spanish or Mexican mule—the offspring of stout, close-built, active Mustang or Mexican mares is superior in endurance to any known in the United States. He requires less food, takes it quicker, and is always in better fix for travel. If it is more profitable to raise good animals than poor ones, (and no man of ordinary intelligence can doubt this proposition), select mares for mule bearing that are sound, compactly built, and yet without any contractedness of body—active, strong, every way serviceable. Then, the choice of a suitable jack is important—doubly so from the fact that the great majority of mares breed after the jack in the matter of legs and feet, and, if it is a good and powerful jack, the foal will generally bear his marks, which is a matter of some importance, since mules so marked are always regarded by experienced stock men as being most hardy and valuable. The jack should be large—the larger the better, other things being equal,

since it is impossible to find one so much surpassing in size the mares we have described as to render him objectionable on account of disproportion, as may easily be the case with a horse. Most especially must the breeder have an eye to his legs and feet; for here, if at all, the mule is apt to be a failure—having a horse's body, ready to take on flesh beyond his requirements, mounted on legs that are too slight of bone and too small of muscle, with feet below the standard size for highest usefulness.

As for the treatment of mares that are to be thus bred, no farther directions need be laid down, since it must be substantially the same as that prescribed for the breeding of horse foals. The like instructions relative to weaning, feeding, and sheltering the colt must also be carried out; and too much importance cannot be attached to beginning early the work of familiarizing him with man. He should be taught to regard his keepers without fear, to allow himself to be haltered, and readily to submit to submit to direction and guidance. If this is done, he will be easily trained, when the proper time shall have arrived; and if properly handled and judiciously taught then, he will be not only a useful, but a trusty and agreeable animal.

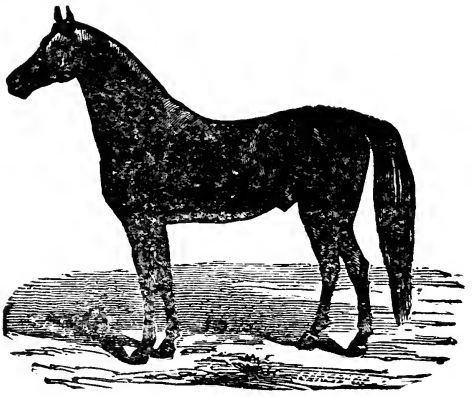


THE NERVOUS SYSTEM.



SKELETON OF HORSE.

The Breaking and Taming of Wild and Vicious Horses.



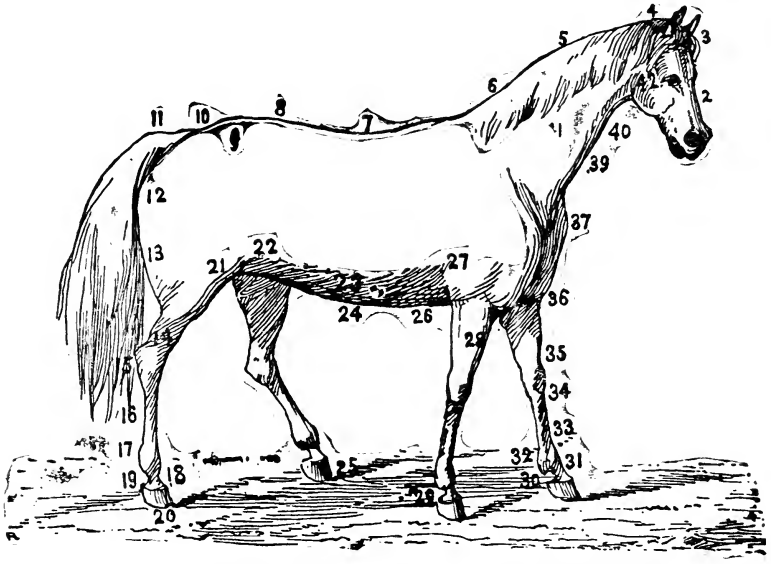
Nature of the Horse.

The horse has no reasoning faculties beyond the limits of his experience. Hence we can reason with him by acts alone. Literally, with the horse, acts speak louder than words; and hence the absolute importance of commencing every move with the horse right, for by our acts he learns. Secondly, early impressions are strong both in the human family and with the horse, and seldom, if ever, are entirely erased from memory's tablet.

Who is there in the human family that does not well remember the first impressions of his boyhood days; and as we journey on through life, what a controlling influence they exert over us; just so with the horse. Hence the great importance of having his first impressions of man, of such a nature as to convince him not only of man's superiority, but to satisfy him that man is his best friend. Obtained by a systematic course of handling, not only supreme power over him, but teach him also to repose trust and confidence in you and then never betray it. No animal has memory equal to that of the horse, and none will reciprocate a kindness or resent an injury sooner. I hold that man being on account of his intellectual resources superior to all other animals, is and has a right to be at

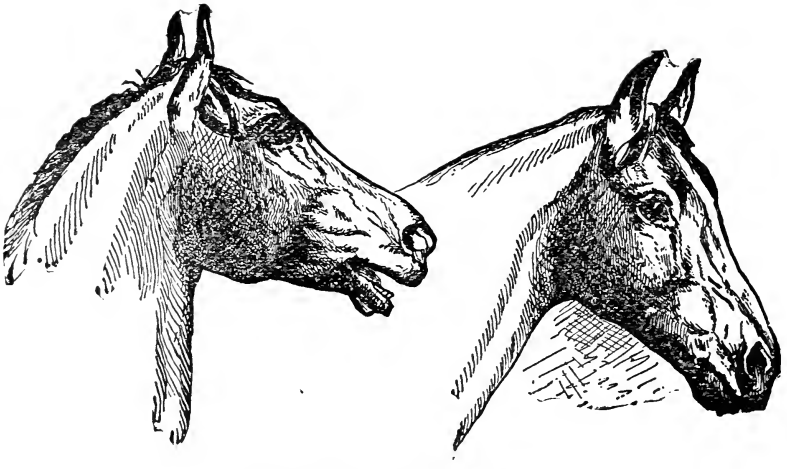
the head of all animal creation, for he can adopt means to overcome the strength of the horse or even use it against himself.

Always remember this: before any attempt is made to handle a horse, it is an imperative necessity that we must first consider his disposition, nature and understanding.



Names and Situations of the External Parts of a Horse.

1. Muscles.
2. Face.
3. Forehead.
4. Poll.
5. Crest.
6. Withers.
7. Back.
8. Loins.
9. Hip.
10. Croup.
11. Dock.
12. Quarters.
13. Thigh.
14. Hamstring.
15. Hock.
16. Cannon.
17. Fetlock.
18. Large Pastern.
19. Small Pastern.
20. Hoof.
21. Sheath.
22. Flank.
23. Belly.
24. Stifle.
25. Coronet.
26. Girth.
27. Elbow.
28. Arm.
29. Heel.
30. Small Pastern.
31. Large Pastern.
32. Fetlock.
33. Cannon or Shank.
34. Knee.
35. Forearm.
36. Breast.
37. Point.
38. Shoulder.
39. Windpipe.
40. Gullet.
41. Neck.
42. Jowl.



Intelligent Driving Horses.

Question. How would you tell the dispositions of different horses?

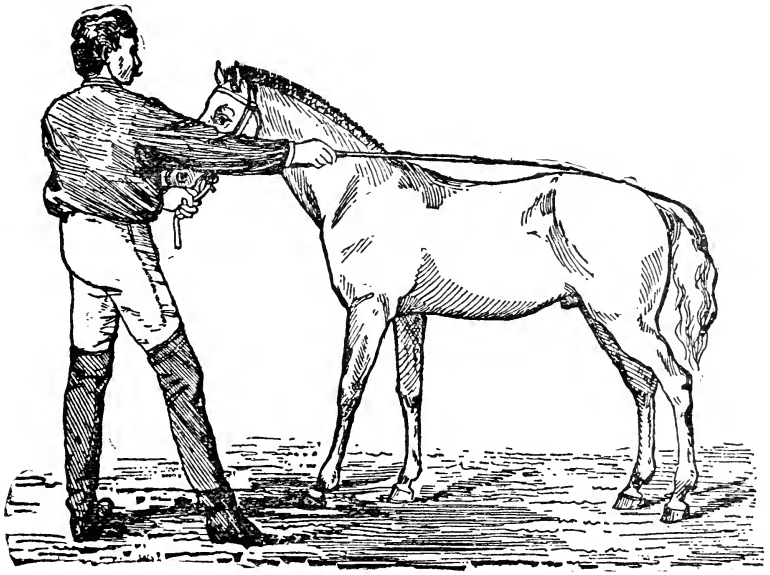
Answer. Horses vary in disposition the same as people. Some have nervous, excitable dispositions, while others are treacherous and sullen. If the horse has long ears, long hair on the inside, narrow between the ears, narrow between the eyes, with a small, round eye, sunken in the back of the head, and a small, thick nostril, you have a horse of no intelligence and of a very sluggish disposition. If you have a horse with small ears, furry inside, broad between the ears, broad between the eyes, with a large, full, hazel eye, and a large, thin nostril, he is a quick, nervous, intelligent animal, ready to obey any command that you give him; but you must not whip or spur him. Now, if you ever find a horse that drops in on the top of his head and full between his eyes and a kind of a Roman neck on him, and the face between the eyes dished out, these are generally horses that have some vicious or bad vice, and have a treacherous and vicious disposition.

Question. What colored horses are of the best disposition?

Answer. During my professional career of over fifteen years, and having handled in the neighborhood over 15.000 horses, I have

found the easiest subjects were horses of the following colors: Black, dark bay, dark brown and chestnut. Horses of iron gray, light chestnut or sorrel and light bay generally are horses of a mean disposition or a very stubborn will.

Thoroughbred horses require more hard work and longer lessons to get them under perfect control than a cold-blooded horse, but when once thoroughly taught what you want him to do he will never forget your teachings.

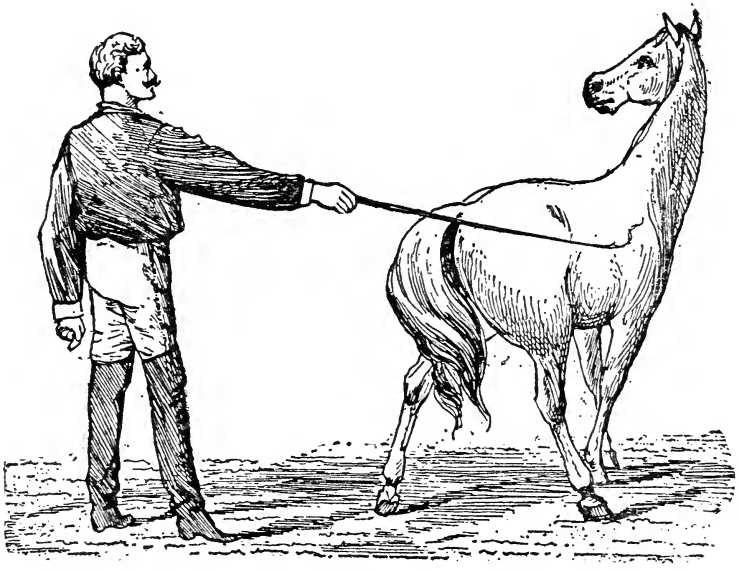


Question. How do you handle a whip to make a colt come forward.

Answer. Take hold of his halter with one hand (left hand), take a bow whip in your right hand, let the cracker of the whip touch him on the tail, carrying the whip directly over his back, as seen in the above engraving; touch him lightly with the whip and say "come here."

Question. How would you break and train a colt, and at what age would you give the colt his first lesson?

Answer. The first lesson to give a colt should be to turn him into a box stall or enclosure of some kind about twenty feet square, taking in your right hand a whip and approaching the colt. If he runs away from you give him a crack of the whip around the hind limbs and follow this up until he will turn his head towards you,

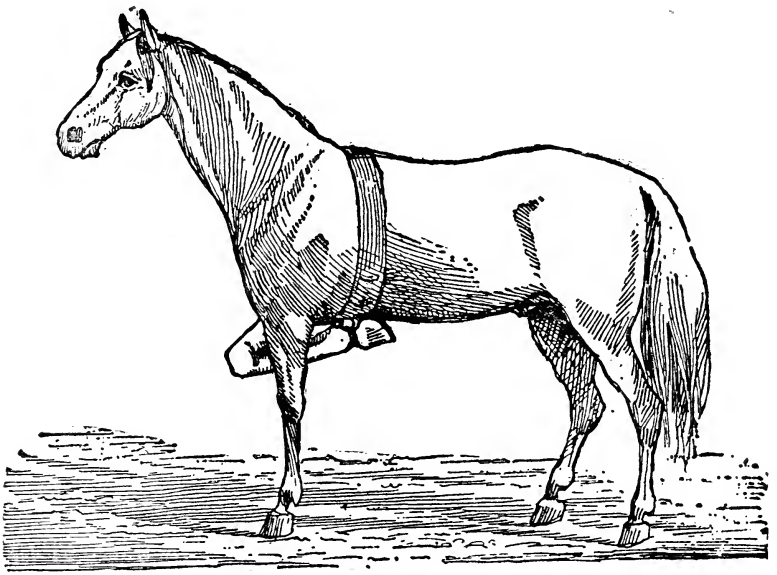


then throw the whip back under your left arm, holding out your right hand, using the words "come here." If, as you approach the colt, he turns to run away from you, give him the whip. When he comes to you offer him an apple. In thirty or forty minutes' time you will teach him that it is wrong to turn his heels towards you; but when he finds he is being rewarded he will soon learn that the right way is to keep his head to you.

When working with a colt always have plenty of patience; go slow and easy, be gentle with him and learn him as you would a child his A, B, C's.

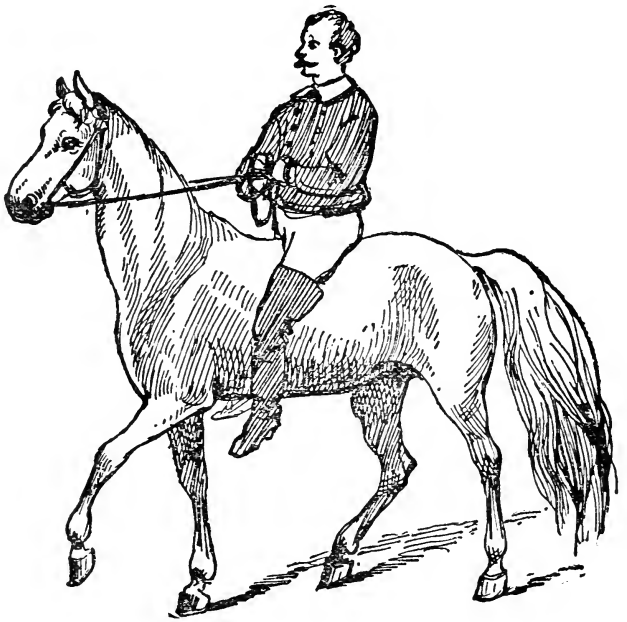
Question. How do you handle a colt's feet and teach him to stand to be shod?

Answer. In handling a colt for the blacksmith shop, place a surcingle around his body, then take a strap about ten inches long and strap his front foot up to the surcingle. How many times in picking up the foot you have seen a great many persons, especially a blacksmith, pound a colt's foot to make him take it up. Now, instead of doing that, place your left hand upon the horse's shoulder, with the right hand take hold of the horse's ankle. When you wish the foot to come up press against the horse's shoulder with your left



hand, this throws him off his balance and you can very easily take the foot from the ground. As your strength is nothing compared with the horse's strength you must use such means as to overpower him and to place him in the position where he cannot get away from you in order for you to meet with success. Now, after you have strapped his front foot up to the surcingle, you then compel the

colt to make four or five steps on three legs. If he is inclined to be wild he will rear, pitch and plunge in the air, but it is impossible for him to get his foot away; but as soon as he finds out that he is fast he will give up; you can unbuckle the strap and loosen his foot and you then have his limb under perfect control. Now this is only one front limb; the other must be handled the same way.



Question. How would you break a colt to ride?

Answer. First put on a riding bridle and an ordinary surcingle. Let one man stand on the off side of the colt with his right hand on the bridle bit, and another man stand on the nigh side of the colt with his left hand holding the bridle bit. Then take a boy and let him mount the colt. The moment he is on the colt's back, the man on the off side, with his left hand, takes hold of the boy's leg, and the man on the nigh side also takes hold of the boy's leg with his right hand. Now, if the colt should plunge, there are two of you to hold him, and at the same time you are holding on to the boy, and it is im-

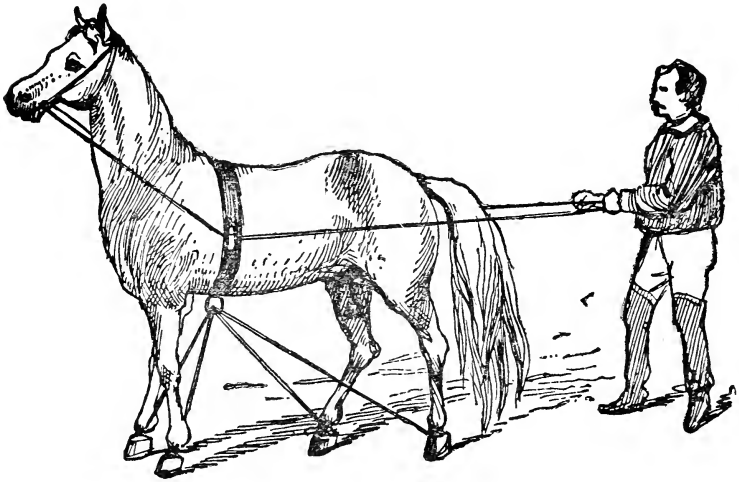
possible for the colt to throw him off. Lead him around for ten or fifteen minutes in this way. Then you can let go of the boy's legs, and one man can lead the colt. Be very careful to caution the rider not to touch his heels to the colt's side. Lead him around, say for ten or twenty minutes. Let the driver dismount and mount him again. Then put the colt away. In two or three hours bring him out again and get on him. If he should make any attempt to throw the rider the second time, let him take the left-hand line in four inches shorter than the other. That pulls the colt's head around to his side and sets him on a whirl. After he has whirled around six or eight times he becomes a little dizzy. You can then straighten up on the lines and say, "Get up," and he will move off nicely. Work as easy with him as you possibly can. I would advise that all colts, before being rode, should be thrown. Then you will have no difficulty whatever.

Handling and Driving a Colt.

Teach him not to be afraid of all kinds of objects. In the handling of a colt for driving purposes, first take an ordinary open bridle and straight bar bit and a surcingle, or a pad of harness, and run the lines through the thill straps of the harness; then step back behind the colt and take hold of the lines and commence to teach him to turn right and left by the bit. Never teach him more than one thing at a time. After you get him so he will turn quickly to the right and left by line, you then can teach him the word "whoa." Then after this has been accomplished teach him to back. Then before ever putting a colt before a wagon, be sure you have him thoroughly bitted and have taught him all of the above commands. Now, before hitching the colt, you want to make him familiar with everything that will be liable to frighten him on the start, such as umbrellas, tin pans, paper, fire-crackers, buffalo robes, blankets, top carriages, and in fact every object that frightens many of our horses and makes them run away. In order to control the colt, teach him that these objects are harmless, in the following manner:

Buckle an ordinary hame strap around each front limb below the fetlock joint; then take a rope twenty feet long, tie one end of this

rope into the ring of the nigh front limb; then place the rope over the ring in the surcingle underneath the horse's body; now through a ring on the off front limb, back through the ring in the surcingle; this gives you a double lever purchase on the front limbs; now step back behind the colt, take the lines in the right hand and the rope in the left hand, give the colt the command to move forward; when you wish him to stop use the word "whoa" and pull the rope at the

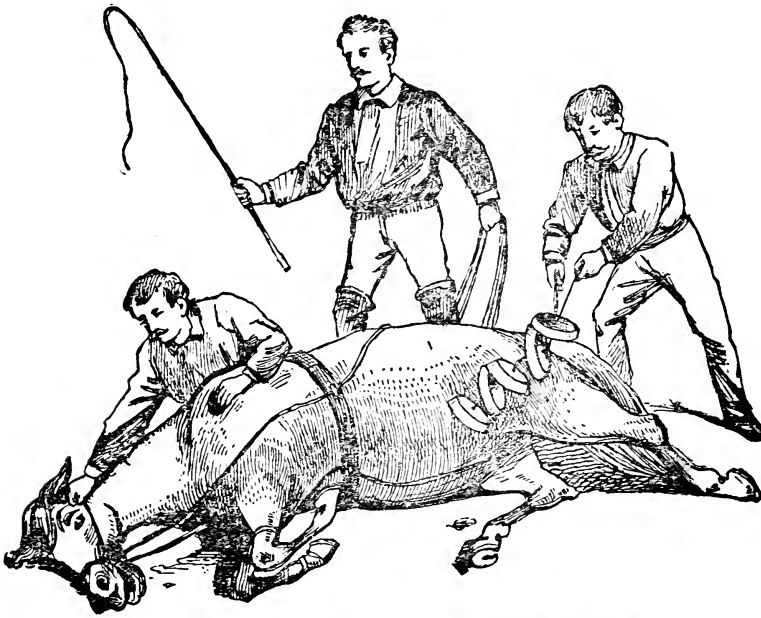


Showing the Working of Gleason's Double Safety Rope.

same time, which will bring the colt to his knees. Now, after you have practiced with the working of this rope, you then have a boy take an umbrella and come up in front of him over his head, rattle tin pans, sleigh bells, buffalo robes, and, in fact, introduce him to everything that is liable to frighten him. If he makes any attempt to get away bring him to his knees and hold him there, and teach him that he is not going to be hurt. These lessons must not be over one hour, giving two of them per day, and in five days your colt is ready to drive.

All colts should be broke thoroughly to harness when one year of age, but never put to hard work until they are five years of age. When breaking use as light a vehicle as possible. Always educate your colt to drive single first, and any one can drive him double.

Too much importance cannot be attached to the manner of educating a horse's heels, as it is in that point his greatest means of defence and resistance lies, and most men make the mistake of breaking one end of the horse, while they allow his hind parts to go uneducated. The instructions I am about to give will, if properly followed, insure success.



To Educate a Colt not to be Afraid of His Heels.

While you have the colt down, as illustrated in the above cut, make him thoroughly acquainted with bells, drums, tin pans and cracking of the whip, being careful all the while not to inflict pain. Roll an empty barrel over him, all the time creating as much noise as possible; you will find he will soon give up to it, lying perfectly

still like a philosopher until the confusion is stopped and you command him to get up. When he gets up caress him by patting him on the neck, giving him an apple, &c. Now, give the colt this same lesson every day for three or four days and you will soon see the practical utility of this teaching when you come to drive him, as you will have a young horse that will not be afraid of bands of music or any sudden noises which he may come in contact with, and he will always remember the lesson.

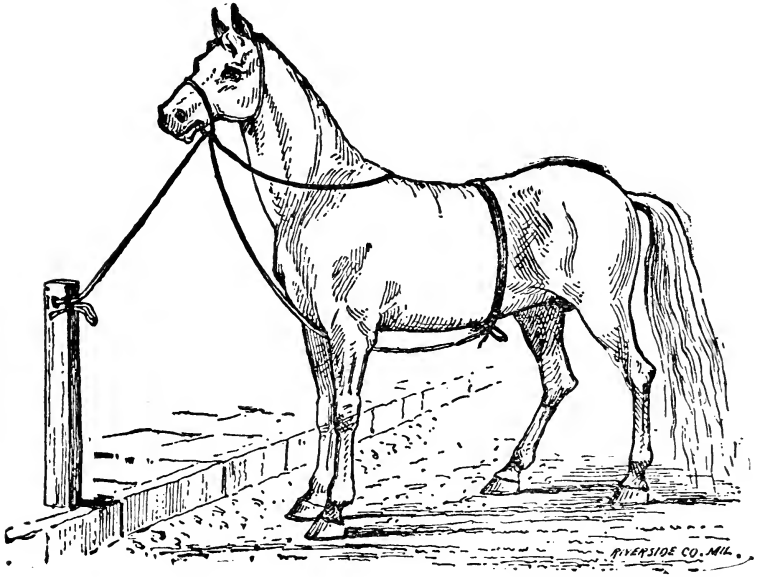
The above instruction is equally applicable to a kicking horse, but in his education he will require more lessons before the habit will be entirely removed. Still, kindness and a little patience will soon accomplish all you desire.

Men in general exercise too little patience in the training of their colts, and they frequently expect to accomplish more in a short space of time than can possibly be performed. Yet the time really required, when measured by days, is so short as to be really surprising. Let us suppose that in training a colt one were to spend two hours a day for ten days, which is the longest time that could possibly be needed. Compute the time at ten hours to a day and the whole amounts to but two days, at the end of which he would have a well educated animal. I doubt if a farmer or horse raiser could employ his time more profitably in any other way than in thoroughly educating his colts, as he thus enhances their value, for there is no sensible man who would not give fifty dollars more for a properly educated animal than for one improperly trained.

Question. How would you hitch a colt by the halter the first time?

Answer. Take a rope twenty feet long, making a slip-knot in one end, passing it around the body in front of the colt's hind legs, with the knot directly under the horse's belly, bringing the other end between his front legs, then up through the halter; then hitch him to the manger or post, throwin the halter strap over his back so as to be out of the way. B sure and have a halter with a strong head stall. Then step in front of him and show him a parasol, beat a drum, doing anything and everything you can to frighten him, be-

mg careful not to inflict pain, and repeat this lesson to him every day for two or three days, and you will have him thoroughly broke. Use the same treatment for a halter puller.

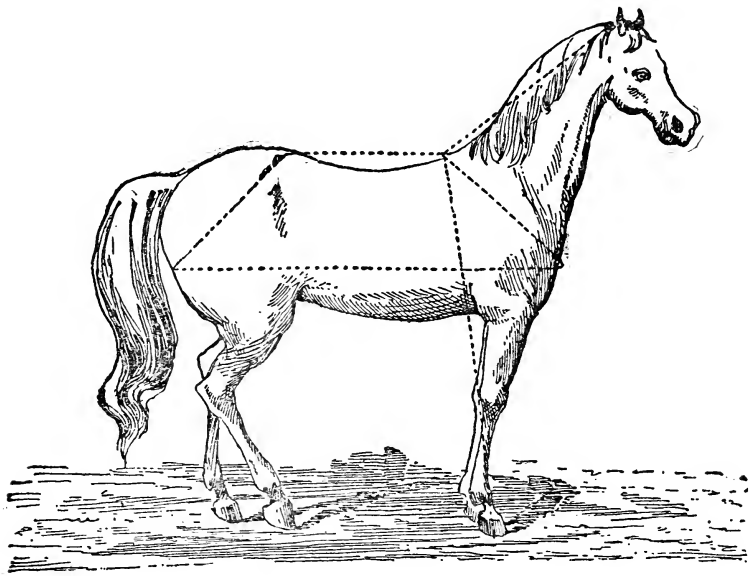


Question. Can you give me any rule to buy a family horse by?

Answer. Your horse should stand sixteen hands high, the ears very small, pointed and furry inside, very wide between the ears; a large bright hazel eye standing out prominently; the nostrils must be large and thin; neck long and well cut up under the jaw; heavy muscle on top. The withers must always be higher than the hips; back broad and long hips, and close jointed.

For durability always buy a close-jointed horse, and one with fine, short hair. The finer the hair the longer-lived the horse. For a good road horse, he should measure exactly as much from between his ears and his withers as from withers to the coupling of the hip; that is, the withers should be exactly midway between his ears and

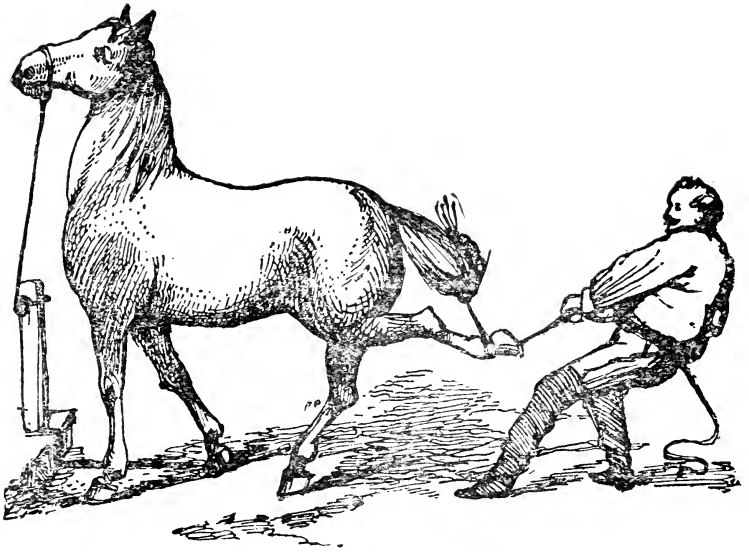
the coupling of the hip. From the point of the withers to the shoulder should be just as long as from the coupling of the hip to the point of hip by tail. The horse should measure from the point



of his withers to the bottom of his front foot fifty-seven inches, and from the point of the shoulder to the point of the hip; length of horse, sixty-two inches. Parties buying by this rule will find it invariable.

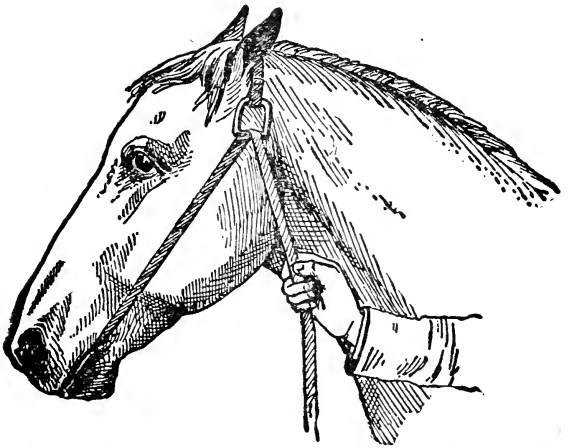
The Way to Shoe a Vicious Horse.

Take a strap and buckle around the hind foot below the fetlock joint, and take a rope ten feet long and place it through the ring upon this strap; take a wooden pin four inches long and an inch in diameter, lay directly across the hair of the horse's tail—doubling the hair over the pin makes a loop—then tie a slip-knot in one end of the rope and pass it over the end of the tail and the pin; now reach down and take hold of the rope, stepping directly behind the colt, and say to him "take up your foot, sir," and pull the rope at the same time. After picking up his foot four or five times, by the



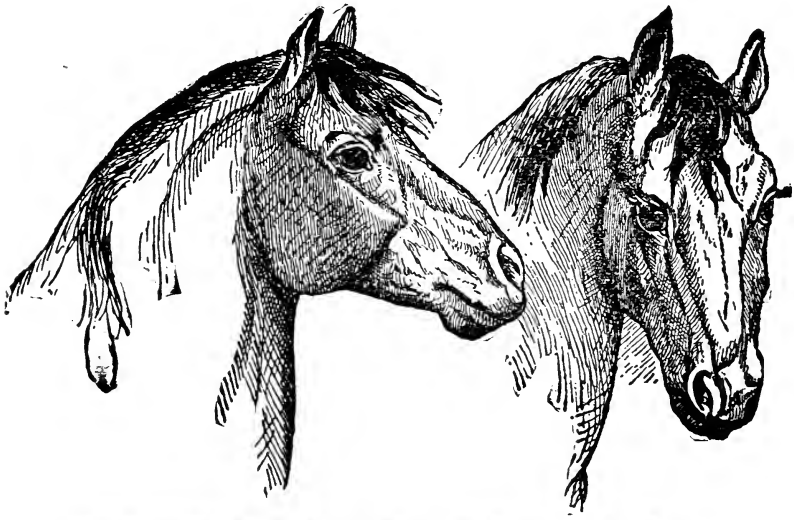
Handling a Colt's Hind Feet.

use of this rope, you can handle his hind feet with ease to be shod Handle the other foot by the same process.



Gleason's Head Strap to be Used while Shoeing Vicious Horses.

When you have a horse that will not stand to be shod in a blacksmith shop, take a strap about four feet long, make a ring in one end of it, put the strap in his mouth, having the ring at the top of his head. Pass the other end of the strap through the ring and draw down tight and tie. Then use in combination my method of handling a horse's foot. Rope, wooden pin and strap as seen in engraving elsewhere in this book. By this means you have complete control of your horse. Always be gentle with your horse, but be firm and teach him that you must have your way.



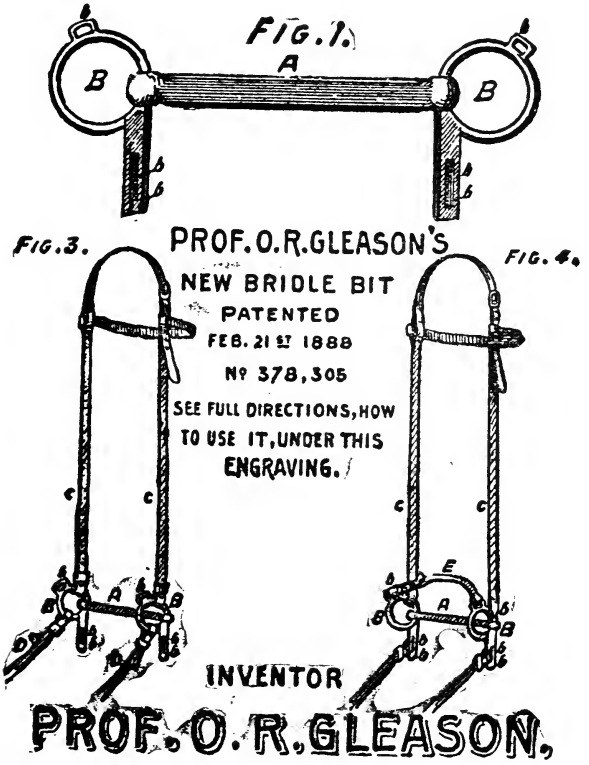
Perfect Heads of Draft Horses, Kind and Good Workers.

Question. How do you work your bit, and is it patented?

Answer. My bit is a straight bar bit with check pieces, with slots in lower ring and a small ring for curb strap. When the bit is buckled to the bridle the cheek piece of the bit buckles into the big rings right in front of curb strap rings. For driving an ordinary horse the reins are buckled into the big rings. If you have a horse that is liable to run away, kick, shy or is hard to control, buckle the lines from the big ring and buckle them down in the slot of the

cheek piece. This gives you 500 pounds pressure, and any lady can drive the worst puller that you ever saw. The curb strap must be buckled at all times back of the jaw. Just have it fit snugly.

The philosophy of this bit, being perfectly square, is that the moment you pull on the reins the bit turns in the horse's mouth and throws his jaws open; the curb strap doing its work throws the bit directly back from the jaw.



I have studied over three years to invent a bit that would do its work and do away with all those cruel four-ring bits, chain bits, and in fact all severe bits. This one I am using at the present time at all my exhibitions with grand success, and can recommend it as the best driving bit I ever used.

I had the bit patented, number of patent, 378,305, on the 21st day of February, 1888. I have other patents still pending. I caution all parties not to manufacture or offer for sale these bits unless so authorized by me.

The Working of my New Bit.

A represents the mouth-piece or bit proper, which is made in cross sections, with its edges cut off or dulled to prevent injury to the horse's mouth. To each end of the mouth-piece or bit proper and attached to the rings B in the usual manner. The rings B, preferably made of steel and cast in one piece, are each formed with the downwardly projecting arm B, having a slot B 2, for attaching the reins, and with the upwardly projecting loop or eye B 3 for receiving a curb strap when desired. For ordinary use the headstall C, and reins D, will both be secured to the rings B, as shown in figure 3; but when the bit is to be used upon vicious and unruly horses, the reins D are secured to the arms B, and the curb strap E, which passes under the jaw of the horse, is secured to the loops or eyes B 3, as shown in figure 4. When thus arranged, by pulling on the reins, the leverage being increased, the mouth-piece or bit proper will be turned, and owing to its being square it will be impossible for the horse to take the bit in his teeth and hold on to it. Instead of forming the arms B of the rings with slots, rings may be secured to the ends thereof as in the ordinary manner.

Question. What do you think of the check reins? Should they be used on a horse?

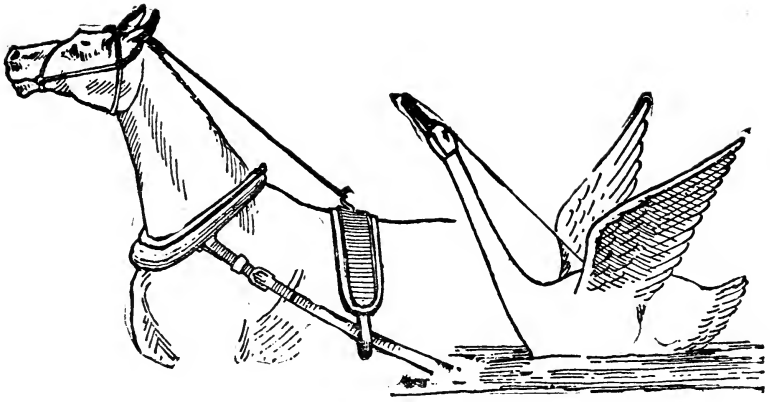
Answer. I think the check reins, as used by many of our horse owners, are a cruelty to animals. I will give you my idea of the check rein and as I think it should be used. In the first place, if your horse is born into this world with style he will always have it. If he is born into the world without style, you cannot produce style where nature designed for it not to go by the use of straps or ropes, unless you are torturing the poor dumb brute.

I approve of the side check rein used only to prevent the horse from putting his head to the ground when you stop your team. I

condemn the use of all overdraw check reins, also check bits of every description. A great many believe that by using an overdraw check rein and elevating their horses' heads in the air that they drive easier and that they are guarding against the horse from running away. This is wrong. No horse, in my estimation, looks handsomer, freer and easier than those that are driven with open bridles and no check rein. I would here suggest that every team horse to-day used or heavy

draft horse, or hack horses, and all animals used by transportation companies, should be worked with open bridles, doing away with the blinders and the check rein. Give the work horse and the driving horse the free use of his head, the same that you wish yourself, not only will they drive better, but last longer, and keep on five per cent. less food.

A law should be passed prohibiting the use of all overdraw check reins, as it passes directly over the brain of the horse.



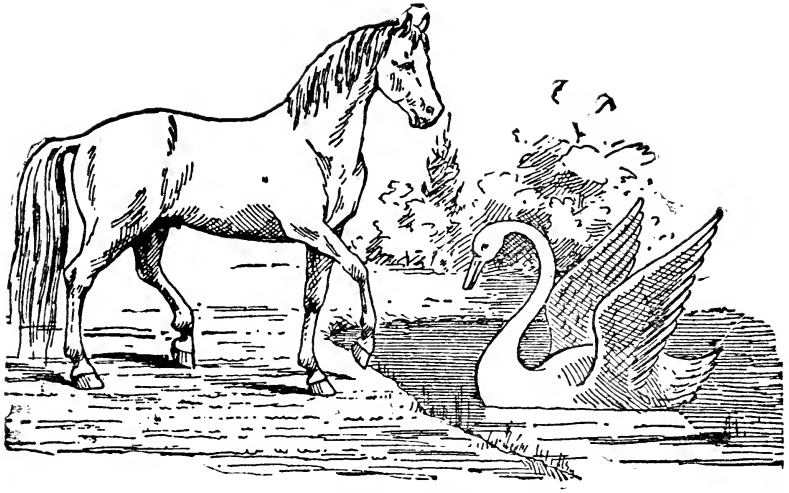
The Horse with Over-check.

In this illustration we see the law of curved line violated. Not only is the strap running over the head made unduly conspicious, but a straight line running thus over an arching neck is as much out of place as a straight pole would be by the side of a bed of roses.

Again, this straight strap is not only a disfigurement of itself, but it is still further injurious to fine appearance, in consequence of taking the curve from the horse's neck and converting it into a straight line, besides wearing off and breaking to pieces the mane, which in many horses is a leading feature of beauty.

It will also be seen that the grandeur of the horse's bearing and noble pose of head are all destroyed by this peculiar method of checking which turns the eyes upward and nose outward, and makes the neck appear considerably smaller than it really is.

It is impossible to resort to a device that will more effectually destroy the handsome appearance of fine horses than does this foolish appliance for raising the horse's head by means of the overcheck. There is no beautiful object in nature but would have its beauty marred by a line that would hold it thus in constrained position.

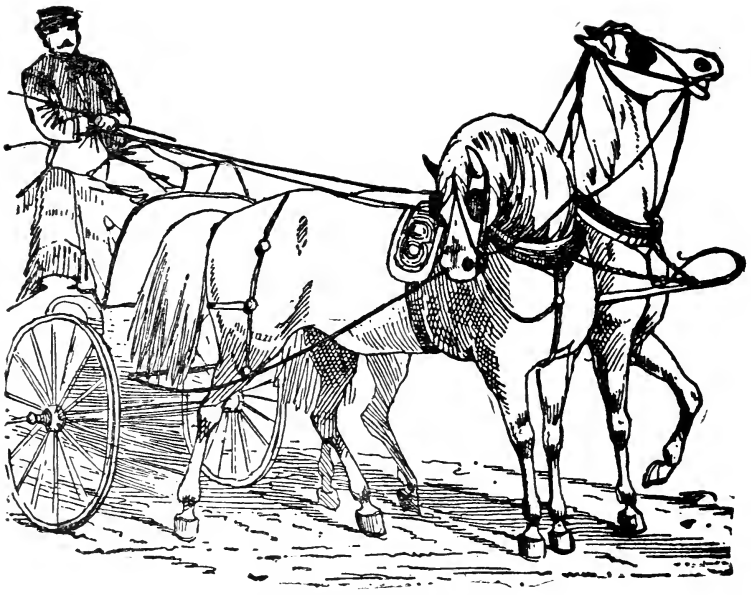


Horse in Natural Beauty Without Check-rein.

As will be seen in the above, the horse, which is one of the most beautiful animals in existence, is largely so, because of its fine proportions and graceful curving outline.

In all her objects of beauty nature furnishes the curve. She never allows a straight line. We see this in the outer form of bird, leaf, blossom, tree, forest, mountain and planet. This is strikingly shown in the human countenance, which, when wasted by disease, loses its beauty through becoming thin, angular and full of straight lines. With returning health, the face becomes more full and more curved, and more color comes into its lines and beauty is restored.

Horsemen, in the dressing of the horse, should understand this law, as a well-cared for, well-groomed horse, cannot be improved in appearance by harness. There should be just as little of it used as possible, and every strap should be made as small as safety would allow. In short, the harness should be such as will allow the perfect outline of the animal, in all its parts, to stand freely forth.

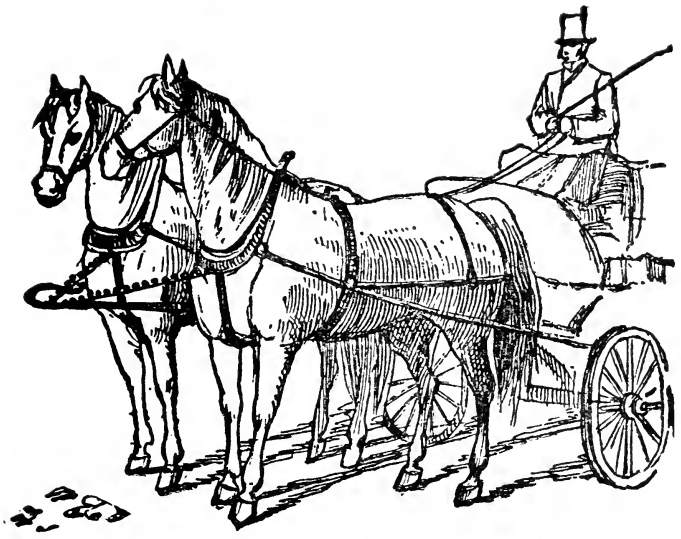


Cruelly Tortured by High-checking.

To fully realize the barbarities practiced upon some of our best horses, watch that beautiful team which stands at the church door, or in front of some store, while the occupants of the carriage are engaged elsewhere.

Possibly the heads of the horses are held in torturing positions by the side check, which oftentimes holds them too cruelly high, but quite likely it is the over check. See the vigorous pawing of the earth, the champing of the bit, the throwing of the head, the restless turning of the neck to one side in order to loosen the check, lower the head and get rest.

See the ignorant driver perched on the seat, all oblivious to the restlessness and frantic efforts of the horses to free themselves from their terrible pain. He supposes spectators will think that, with all their restlessness and foaming at the mouth, his horses have high mettle.



My idea as to how horses should be checked, road horses and others, I positively condemn the overdraw check, it certainly is, and there is no gainsaying it, cruelty to animals to use it. The only utility I can perceive there is in the check at all is to keep a horse from putting his nose to the ground when he stops, and when a check is used, place the loops high up on the cheek pieces to the head stall, as the horse can in such cases have the free use of his head, and can handle himself with ease and grace. For speeding horses it might become necessary to use the overdraw in some cases, but it must be understood that I hold firm to my idea as to the practicabilty of its general usefulness.

Question. What do you think of breeding draft horses, and the care and early training of the colt?

Answer. It has been the stupendous error of the average farmer to consider that any mare will do to raise a colt from. Thousands of worthless horses bear witness to the absurdity of this. The mare should be, as nearly as we can have her, what we hope the colt to be. Above all, she must be sound in feet, bone and wind. She should

be rangy to have room for the growth of the foetus, and wide in the hips to allow of easy parturition. The stallion should be rather more compactly built than the mare. "A short back and a long belly," is an old and correct rule for a serviceable horse. It means good shoulders, good withers, good back and loin, and powerful quarters. The breeder may be assisted by giving some attention to the rule, which has many exceptions, that the male parent gives the external, and the female the internal structure; that the sire gives the locomotion, and the dam the vital organs, that is, the constitution. The mule and the hinny are striking illustrations of this rule.

I am decidedly in favor of autumn foals. The press of spring work upon the farm demands more service from the foal-bearing mare than she should be required to perform. The flies of summer annoy and often nearly devour the youngster. Both dam and colt often suffer from insufficient food in short pastures of a drought, and at length the colt is weaned when the frost-bitten grass has lost its nutriment, and the increasing cold demands abundant food. The first winter is a trying time with colts, and many never recover from the injury they then receive from insufficient or improper food. With warm stables and comfortable sheds, the autumn colt can suck the well-fed mare in the winter, and be weaned upon fresh grass in the spring, and never know a check in his growth. He is old and strong enough to withstand the attacks of flies in the summer, and to endure without injury the colds of his second winter. He should receive regular rations of oats and wheat bran as soon as he has learned to eat along with the mare when she is taking her feed. These can best be given him at a little distance from the mare, she being secured in her place by a halter. For the first year he should receive liberal allowance of these foods twice a day, with such mixed hay and pasturage as he can take beside. These with linseed meal must be the main reliance for making him all we hope him to be. They are rich in the elements which make growth, and without these no perfect animal can be reared. Corn should never be given except in limited quantity in winter when warmth from carbo-hydrates is needed. Where corn must be fed, it should always be ground and mixed with finely cut clover hay, slightly moistened. The clover supplies the nitrogenous food in which the corn is so deficient, and also gives the necessary bulk of proper digestion in

the stomach. It should always be remembered that the horse has but one stomach, and that is small. While on the one hand this cannot contain enough of coarse innutritious food, like straw or poor hay, to meet the demands of subsistence and growth, yet on the other the food must be bulky enough to admit of the speedy and thorough action of the gastric juice, so that the nutritive portions may be quickly dissolved and the refuse discharged. Where corn meal is fed alone it goes into the stomach in the plastic condition of dough, is there rolled about by the muscular action, is as impervious to the digesting juices as a ball of India rubber, and produces fever and frequently serious colic. Where corn is largely fed, its heating effects upon the blood are readily shown in unsoundness at the extremities. The oat is a wholesome food when fed alone, because nearly one-third of its bulk is husk, which makes the mass in the stomach porous like a sponge. I desire to repeat that mixed hay, with a good proportion of clover, oats, wheat, bran and linseed meal, all containing albuminoids which furnish the materials for growth, must be relied upon to develop a draft horse to his true proportions. He must never know a hungry day, and he must never spend an hour shivering on the north side of barn, waiting for his food. While, on the one hand, a stable may be too warm, on the other, every storm in winter is too cold for a steady and vigorous growth. An exposure to cold that produces an active circulation on the surface, and gives to boys and girls bright, rosy cheeks, conduces to health; but every exposure that chills the blood draws upon the vital forces and saps the foundations of the constitution. It costs more, and costs double the time, to regain a pound of lost weight than it does to add five pounds in a continuous growth.

I am strongly in favor of grooming colts in winter, not with the expenditure of labor necessary in using the currycomb and brush, but by a hasty rubbing with a stiff stable broom. It accomplishes two important results—the stimulation of a healthful action of the skin and the acquaintance of the colt with handling and with the contact with substances that otherwise would occasion alarm. This must be commenced with great gentleness. At no time in his growth should a colt ever be frightened. Unnecessary fright ruins multitudes of horses. My own colts, some of which are highly bred, purposely for saddle horses, and are of nervous temperaments,

are daily treated to the stable-broom grooming, to their evident benefit. Now almost anything can be thrown against them, or about their legs, without occasioning alarm.

At all ages colts should have abundant exercise. The pasture in summer, and well enclosed; well shedded paddocks in winter furnish the best opportunities for this. They should be frequently handled from the beginning by cool and judicious hands, ever remembering that, like ourselves, they can learn but one letter of their alphabet and one step in their knowledge at a time. Every colt, whatever his class, should be broken to the saddle, because at some time in after life he must be ridden, and because in no other way can he obtain such acquaintance with his master's will. The colt reared for draft purposes can have the walking gait developed when under the saddle more readily than in any other way. This should afterward be continued by service beside a fast walking horse.

In conclusion, I will only add that the expense of breaking a draft horse is less, by many times, than any other. He sooner pays for his keep by service upon the farm than does any other. When old enough for the market, he finds a readier sale than does any other, and a given number of them, from ten to one hundred, taken together, will sell for more money than will any equal number of any other class of horses whatsoever. To-day the West has almost a monopoly in our country in rearing these profitable animals. The agricultural papers are filled with advertisements of stud establishments, their State and county fairs find their greatest attractions in their exhibition, and their farmers are rapidly learning the advantage of rearing them. We can surpass them if we will, for our situation and conditions are better than theirs. Our farmers will do well to give early and earnest attention to this important subject.

The Stable.

This is a very important part of the subject, and one which is too often neglected by people who own horses and who leave their general management to stable keepers or grooms often grossly neglectful or ignorant. Many horses die yearly from the neglect of their owners to enforce the ordinary laws of health in the stable. A site should be chosen, nearly or quite as well situated as that for the dwelling,

and the stable may be, if possible, separate and distinct from th barn with advantage. Hide it if you like behind trees, but do not cut off the

Circulation of Air.

A supply of pure air is as necessary to the life and health of a horse as of man. In many stables air is carelessly admitted, and blows either on the head of the horse or in such a way that cold and cough is the inevitable result. The practice of feeding hay through a hole above the head of the horse invites fatal results in the way of cold, not to mention the possibility of hayseed falling into the eyes of the horse when it is looking up for its food. An opposite error, however, is to exclude every possible breath of air and have the atmosphere of the stable hot and unwholesome. The effect of several horses being shut up in one stable is to render the air unpleasantly warm and foul. A person coming from the open air cannot breathe in it many minutes without perspiring. In this temperature the horse stands, hour by hour, often with a covering on. This is suddenly stripped off, and it is led into the open air, the temperature of which is many degrees below that of the stable. It is true that while it is exercising it has no need of protection, but, unfortunately, it too often has to stand awaiting its master's convenience, and this, perhaps, after a brisk trot which has opened every pore, and its susceptibility to cold has been excited to the utmost extent. In ventilating stables it should never be forgotten that the health of a horse depends on an abundant supply of fresh, dry air, introduced in such a manner as to prevent a possible chance of a draught on any of its inmates. Many old stables may be greatly benefited by the introduction of a window or windows, which will require but little expenditure, and save many a dollar's worth of horseflesh.

Hay Tea.

This is also refreshing for a tired horse. Fill a pail with the best of clean, bright hay, and pour in as much boiling water as the pail will hold. Keep it covered and hot fifteen minutes, turn off the water into another pail and add a little cold water, enough to make a gallon and a-half or so, and when cold feed it to the horse.

Question. What do you think of having light in the horse's stall?

Answer. Many horses are compelled to stand in the stall where there is a window three or four feet above their heads. This I don't approve of, as the horse will naturally strain to look out of the window, and the light coming so high above his head many times hurts the eye-sight of the horse. I would advise all to have the windows put at one side of the stall, or I would rather they should be directly behind the horse. Always have your stall and stable well ventilated, and have it aired out thoroughly every morning for at least two hours.

Question. What is the best bedding to be used for bedding horses?

Answer. I approve of straw, using about on an average of four pounds per day. The first bedding will require ten pounds. Over two thirds of this can be saved every morning and placed in the sun where it can dry, ready for the bedding at night. Great economy can be practiced in bedding horses. I don't approve of sawdust or shavings, as it causes many diseases in the horse's feet, such as thrush and other like diseases. I would rather, if you cannot get straw for your horse, to stand in the summer time on tan bark. And let me say here, that, if you have a horse that has contracted feet, sore-footed, or that his tendons are diseased, place him in a big box-stall bedded with nothing but tan bark, and you will see an improvement in a very few days.

Question. What do you think of horses having proper exercise?

Answer. There are more horses to-day that die from the want of not having proper exercise than by any other cause. There are hundreds and thousands of horses that are owned by wealthy people, and not having the proper work for their animals they are compelled to stand in the stable from one week to another, being fed very high, and the result is that the horse becomes stiff, lazy, and of a sluggish disposition. A horse, in order to be in health, should have not less than five miles of exercise every day. It matters not whether this is given in the carriage or under the saddle. It is better for our horse to be worn out than it is to rust out. Many times colic and different

diseases originate from the horse being over-fed and not having the proper exercise. Such diseases as staggers, fits and dummies, all come from over-feeding.

I could go into quite a lengthy argument on the above question, but it is unnecessary; I only give you this good advice. If you cannot drive your horse and give him the proper exercise, let some of your neighbors do it.

Question. What do you think of bran mashes?

Answer. Horses should have a bran mash twice a week. In the spring of the year horses should have a few potatoes, carrots or roots of any kind, as it is now known sufficiently that both contribute to the strength and endurance of the sound horse, and to the rapid recovery of a sick one. A bushel of carrots and potatoes should be fed the horse twice a week during the spring months.

Question. How would you clean a gray horse?

Answer. Take castile soap and add charcoal, and wash him thoroughly; this will leave your horse's hair perfectly white, the charcoal being a great cleansing article. Always use the two together.

Question. Will you give me a few general ideas on feeding?

Answer. I will commence by giving you my idea of how horses should be fed and cared for through the day. I will lay these rules down for general driving and draft horses. In the morning, the first thing, give your horse about two quarts of water; following this give him some grain; following this give him some hay, a very little, not over one-half a pailful. After the horse has eaten his grain and hay, bring him out of his stall, give him a sharp, quick grooming, and then give him as much water as he wants. He is now ready for work. If you are driving the horse upon the road, it is the habit of a great many horsemen to continually keep watering their horses on a very warm day; this I do not approve of, unless you have a pail with you; then at about 9 or 10 o'clock in the forenoon give your horse one-half a pailful of water. At noon, just before you give

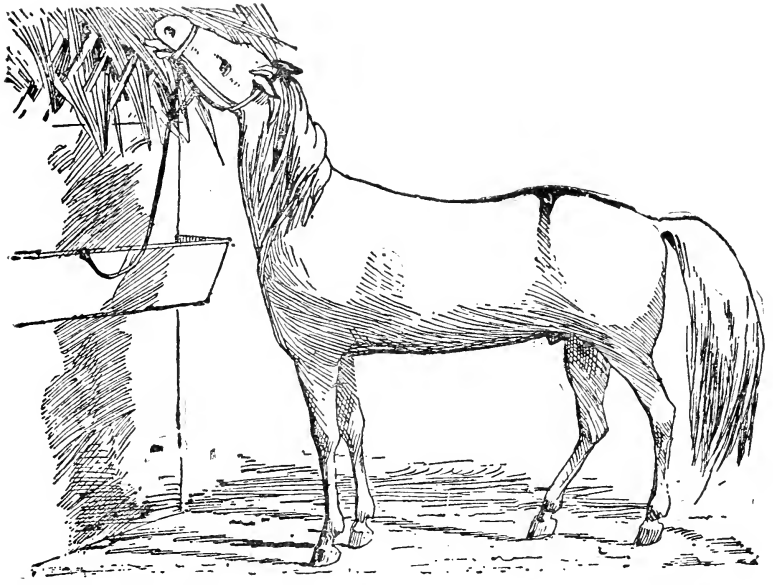
him his dinner let him have about a third of a pailful, then feed your grain; give no hay. Just before you harness him for his afternoon's work, let him have what water he may want. In the afternoon's work follow the same rule as for the forenoon as for water. When you have finished the day's work, and are putting your horse up for the night, see first that the stall is well bedded; place the horse in his stall, give him his grain, then take him out and give him what water he may need. When he is drinking the water have the hay for the night placed in the stall—a good quantity. Your horse is then cared for and will rest during the night.

Under no circumstances feed hay first or with the grain. Always give your horse his hay after he has eaten up his grain. If you will follow the above rule you never will have a horse sick with colic.

Now, as to feeding; I am a great believer in good oats, and then they should be all sifted, every particle of dust and dirt taken from them, giving the horse nothing but the clean oats. All hay, when pitched down from the mow or taken from the bale, should be shook with the fork and every particle of dust and chaff shaken from it. In this way your horse gets clean and wholesome food, and then he is not pulling his hay out, or he is not wasting his oats, but he is at all times ready to eat his meals as they are placed before him in an eatable form. There is a great deal of grain wasted by the carelessness of man.

A book could be written on the manner of feeding, but I don't think it is necessary for me to speak on this subject, only of the general principles, and leave the rest to you and your good judgment.

I might add that I do not recommend the feeding of corn unless ground together with oats in equal proportion. There are many dummies and horses with staggers, and horses that die with colic in our Western States caused entirely by the great amount of corn that is fed to them. Many old horses cannot masticate this corn, and the result is that it is not digested. So give your horse good pure oats, and good bright hay, and pure water. I would recommend the use of soft water from brooks and mill streams. When this cannot be had, and you have to draw the water from a well, let it stand in a trough or tub one hour before letting your horse drink. Many say that muddy water or any kind of water from a muddy pool is good, but don't ask your horse to drink what you would not drink yourself.



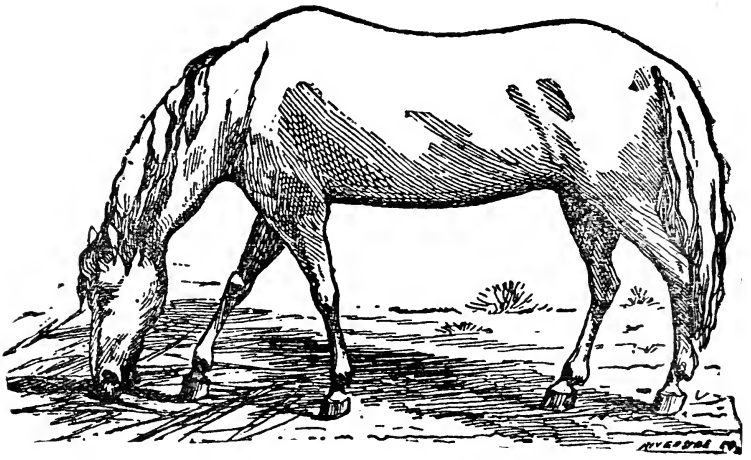
Showing Horse Eating from a High Rack or Manger, an Unnatural Position.

Question. What do you think of horses eating from high mangers?

Answer It is the practice of almost every horse owner to compel his horse to eat from high racks or mangers. This is something that I do not approve of, as it is unnatural for a horse to reach up after his food. In the first place, all the chaff, hayseed, dirt, etc., are liable to get into his eyes and ears, and many times when horses are fed their grain they eat it so fast that they do not masticate it properly, and the result is that their digestive organs have to perform what their teeth ought to do.

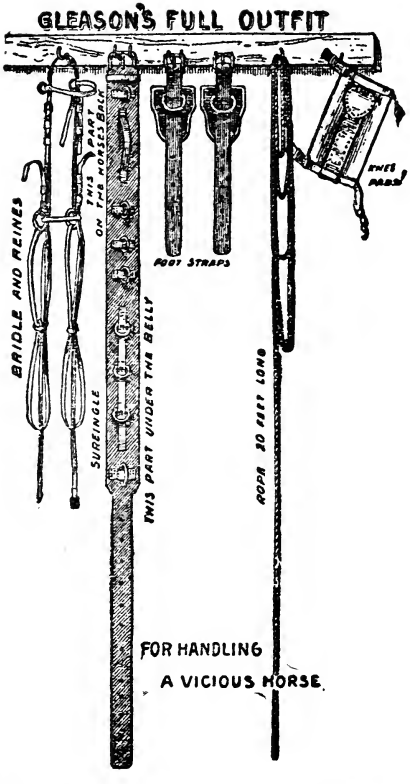
Take and turn your horse out into a field, or say on the side of a hill, and you will never see him feeding up the hill; he will always feed sideways of the hill or down the hill. I claim that many horses are made sprung knee, stiff necked, many times come out of the stable acting as though they were foundered, caused from the continual strain of standing and reaching up for feed, which is positively un-

natural for all dumb animals. Think of yourself getting your breakfast reaching three feet above your head for every mouthful that you get. It would be more pleasant and you would relish your meal more by having the food placed one or two feet below your mouth. I approve of having all horses fed in the following manner: Take your mangers [illegible] entirely out of the stall; feed the hay from the door even with [illegible]. In giving grain have a box made



Horse Eating his Food from the Ground, as Nature intended. The only Proper Way to Feed the Horse.

movable, and place the grain in this box, and let the horse eat that from even with his feet. He eats his grain slow, masticating it properly, and the result is that while you have had to give your horse twelve quarts of grain in feeding from a high manger nine quarts fed from even with his feet will keep him in better condition than the twelve quarts fed from the manger; and I think that you will soon find out that my idea will save ten per cent of food one year.



This Engraving shows a Full Outfit, as used by O. R. Gleason in Handling all Horses of Vicious Habits.

Surcingle Used by O. R. Gleason in Handling Horses.

How to Make My Surcingle.

In order to make my surcingle, have a piece of leather eight feet long, four inches wide, with rings upon it six inches apart, having it so that when it is buckled on the horse that two rings will be directly

under his body with one ring on each side of him and three rings on the top of the surcingle; one of these surcingles will be very useful and should hang in every stable.

To Educate Horses Not to be Afraid of Objects when Driving.

It is impossible to overestimate the value of the subjoined instructions respecting nervous and shying horses, therefore on this topic I wish to be particular, clear and explicit. Let the reader understand that horses take fright at objects because they fancy that those objects will harm them, and if you can by any means appeal to the horse's brain, and satisfy him that he is not going to be hurt, you have accomplished your object. And in order to do so you must have control of your horse. I do not mean by this that you are to adopt the too frequent course pursued by many, viz: subduing with the whip, or other harsh means, which will, without almost an exception, increase the fear instead of removing the habit. Again, when a horse shies, the driver commences to jerk on the reins nearest to the object, and at once applies the whip, fully determined to master his horse. Both man and horse get excited, and the horse comes off victorious, because he cannot control him by the means used, and the result is that the next time the animal is frightened it bears a two-fold character—the fear of the object and the fear of the whip punishment.

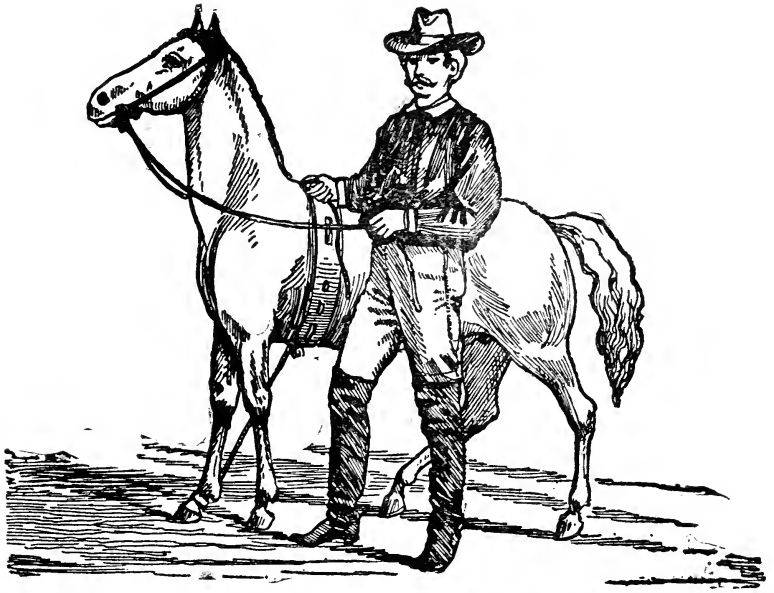
It is generally a crude habit of many persons when driving a horse past an object of which he is afraid to begin with "whoa, boy! whoa, boy! whoa, boy!" and when the horse has passed the object, to take the whip and lash him with it, and say "I will learn you to shy," &c. Now when this treatment is pursued, I claim the horse believes that the object that he was afraid of inflicted the pain, and consequently he is made worse instead of better. Now my theory is to use the whip gently when approaching the object, and compel him to walk right up to it, and let him smell of it, stopping him, showing him that it will not hurt him.

Only use the whip when you give the word of command, speaking with force and distinction, as I believe nine-tenths of our runaways

are due more to the one driving him, than to the horse himself. The horse is a cunning animal and sizes up his driver with the rapidity of thought, and when he is fully aware that his driver is afraid of him, he takes advantage of it and runs away. If my instructions are fully carried out by my readers, as to the thorough way as herein laid down, I am positively certain there will be no runaways.

Question. How would you throw a horse down and hold him after throwing?

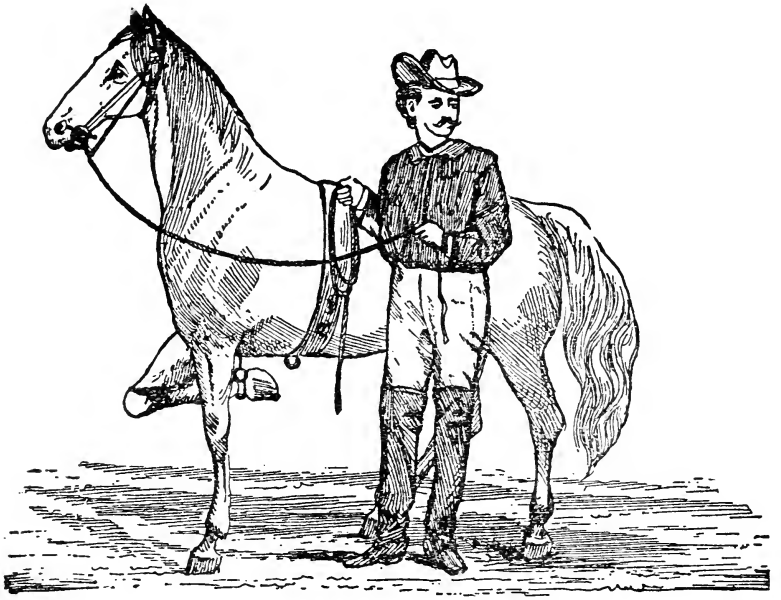
Answer. Put on your horse a good strong halter; take a strap with a ring in it and buckle around your horse's off front limb, below the



First Position Taken in Throwing a Horse.

fetlock joint; take a rope eight feet long and tie into this strap; place a surcingle around the horse's body; take your position on the nigh side of the horse, bring the rope over the horse's back from

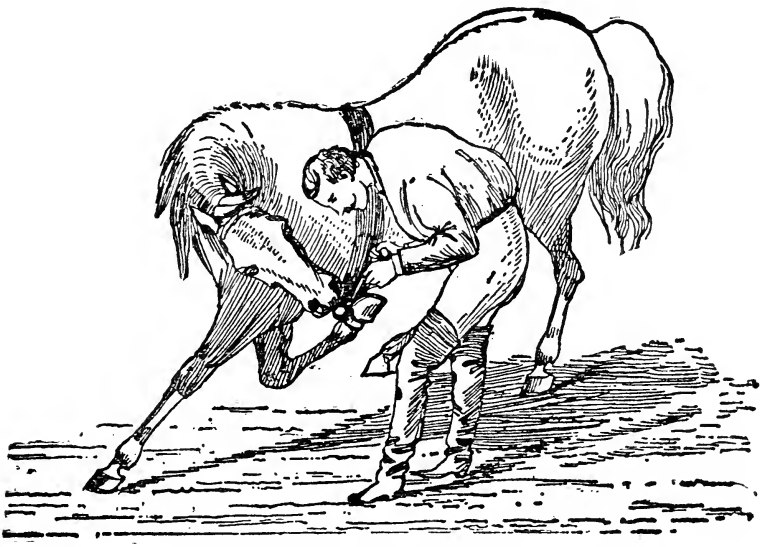
the off side, taking hold of the rope with your right hand, pull his foot to his body; take a firm hold of this, holding the foot in this position; then take hold of the horse's halter with your left hand, pull his head to you and press against his body with your elbow, using the words "lie down." The majority of horses you can throw in a minute, while others may fight you for three or four minutes, but you will soon master them and they will have to come down.



Second Position in Throwing a Horse.

As soon as the animal has been thrown, take the rope that is underneath him, bring it under the surcingle and place it through the ring of the halter, back under the surcingle again, and here you have the rope to bring his head to his shoulder; make him put his head down to the ground, and then if you want to rattle pans or shake buffalo robes around him, and he makes any attempt to get up, pull his head up immediately, which will prevent him from doing so; then take a whip and crack it around him; give him to thor-

oughly understand that you are his master. I am a great believer in throwing horses, and would recommend that every horse should be thrown, for this reason, that it takes the conceit out of them, and gives them to understand that man has more power than they have. If used by men of good judgment and patience, all young horses can be thoroughly brought under control by this manner of handling.

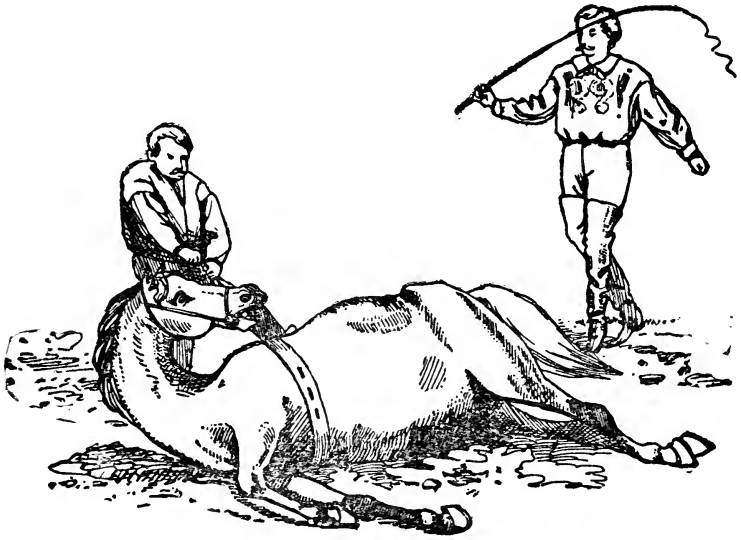


Third Position in Throwing a Horse.

Place a surcingle around the horse's body, buckle hame strap around off fetlock joint, take rope eight feet long, tie one end in strap on off foot, pass the rope over horse's back from the off side. Stand on near side of horse, grasp rope with right hand and pull foot to the body. With the left hand take hold of the halter and pull his head to you, press right elbow against his flank, and he must lie down.

The rope is now under the horse's body. Put the end of rope through the ring in the halter, then through the ring in the surcingle on the horse's back. Then take your position at the horse's back as seen in engraving. You can prevent him from getting up by pull-

ing his head to his shoulder. If the horse is nervous and excitable, have your assistants crack the whip, rattle tin pans and shoot fire-arms around him, until he will lie perfectly quiet, with his head resting on the ground. In order to familiarize your horse to all objects of which he is afraid, repeat this lesson once a day for three or four days. I would recommend that every horse should be thrown, as it takes the conceit out of him.

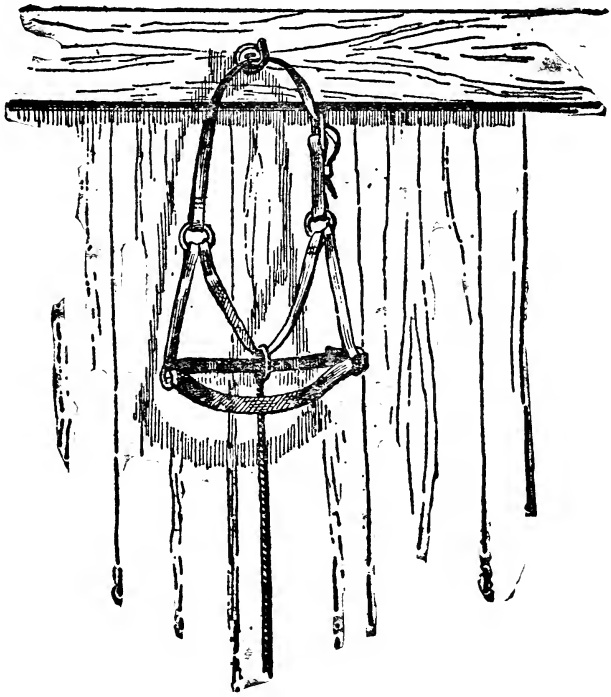


Fourth Position in Throwing and Showing the Horse Down.

Question. How do you make your surcingle, and what will it cost?

Answer. My surcingle that I use in all of my exhibitions is eight feet long, and around the horse's body four inches wide, with a three-inch buckle, and the part of the surcingle that goes through the buckle two and one-half inches wide. When the surcingle is on the horse the buckle comes right on the side of the animal, underneath the horse's body. There are four two-inch rings, one on each side, one underneath, and on the top of the surcingle a ring. These rings underneath the horse's body are used for the working of my

double safety rope; the rings on the side of the surcingle are used for the reins to pass through; the ring on the top of the surcingle is used to pass the rope through and hold the horse down after you have thrown him. This surcingle is a very handy thing for everyone to have, and any man that has a number of horses to handle or break should not be without one.



Proper Halter to be Used in Throwing a Vicious Horse.

They are very handy to have in the stable in case of a sick horse or any surgical operation that you may wish to perform.

They should cost you about $5.50, according to the material that you have in it. *This surcingle I use when I throw the horse. Every horseman should have one.*

If in throwing a horse you find it requires too much strength, the horse being too large or fights too hard, when using my method of drawing up one foot, I would suggest the appliance of my double safety strap. Buckle the strap around each front limb below the fetlock joint. Take a strap twenty feet long, snapping to strap on nigh front limb, place through the ring in surcingle underneath his body, draw through ring on off front limb and back through ring in surcingle. Now take hold of strap with right hand, take the halter in left hand. Your horse is standing on three legs. Now pull him to you, and when he makes a move, you pull the strap and raise the other leg; this brings him to his knees, Now pull his head around to you, and the horse will gently fall upon his right side. This is the safest and best method of throwing a horse I know of, there being no danger of hurting either horse or man.

You Must Educate Your Horse.

Educate and teach him as you would a child, and thus make him more useful and valuable to man. The horse is an animal of no little intelligence, docility and faithfulness, qualities which would be more generally apparent were it not for the cruel treatment so commonly practiced in breaking him. Have patience with him, and practice good judgment and common sense in handling him. Understand before you commence to drive him that he is a dumb brute, and as he cannot talk he will watch your every movement. A finely-bred horse is as sensitive as a well-bred person, and you should not halloo, whip or spur him as you would an old dung-hill of a brute.

The whip is a very good thing, but should only be used in its place, which I will give you a little illustration of here. If you are driving along the road and your horse shies at a covered wagon or a bicycle or a white dog, or anything that excites his fright and causes him to shy, do not wait until he gets by and then up and whip him for the next fifteen minutes, but when he discovers it, take the lines in the left hand and the whip in the right, and when he makes his first shy give him a sharp crack of the whip, at the same time saying "take care, sir; what do you mean?" Don't talk as though you were half asleep, but as if you meant just what you said. Keep both eyes open and don't whip him as though you were trying only to kill

a fly on his back. Never strike a blow with a whip unless the voice accompanies it; the word and blow should go together.

One failing the horse-owners have is they do not talk to their horses enough. If a horse starts and runs you will stay in the carriage and not open your mouth, but sit pulling on the reins. You should speak to the horse, and if he is afraid of anything tell him to "take care, etc., it is not going to hurt you;" the same time crack the whip to draw his attention. As a horse cannot think of two things at once, the consistency of this is of course apparent.

Bad Biters.

If the horse is a stallion with a confirmed habit of biting and striking, I should not think it worth my while to attempt to cure him, but should castrate him at once. You are always in risk of your life or limb while you have such an animal about. If a mare or gelding, put on the Gleason bridle, and watch him closely, in a sly way, not letting him know you are watching him, but when he attempts to bite give him a few severe pulls upon the bridle. Do this in such places as he is most likely to bite, and we will warrant that a few efforts will teach your animal that his jaws were not made to bite his keeper. To prevent a stallion from biting his mate when hitched up double, attach an independent line to the outside ring of his bit, letting it hang loosely, the end being held by the driver. As he attempts to bite, pull up sharply, and hit him severely with the whip.

Question. How would you handle a vicious, biting stallion?

Answer. The first thing I should do with him would be to throw him four or five times. When the horse is down handle his head, open his mouth and handle his mouth. Put on the "*Gleason Bridle*," take the whip in your right hand, cord in the left, and give him a thorough handling with this bridle, teaching him to stop when you say, "Whoa," and turn right and left quickly at the word of command. I have handled a great number of vicious, biting stallions by the use of gunpowder, using revolvers holding thirty-eight blank cartridges. The moment the horse comes near you, or makes an at-

tempt to bite you, discharge the revolver directly in front of him, which frightens the animal and gives him such a sudden shock that it makes him afraid to bite you. All vicious, biting stallions should be watched closely, and never trusted, as I believe an old biting horse can never be broken of the habit so everybody can handle him.

Question. How do you educate a bad shier?

Answer. In educating a bad shier I put on my double safety strap, which is a surcingle, around his body, a strap buckled around each front foot below each fetlock joint, then take a strap twenty feet long, tie one end of that strap into ring on nigh front limb, bring over surcingle under the horse's body down to ring on off front limb, back over the ring in the surcingle. Put on open bridle and straight bar bit, run the lines through ring on side of surcingle, then take and teach the horse the word "whoa" thoroughly, to "get up" by word of command and to back by word of command; then throw papers at him, blankets, buffalo robes; roll barrels around him, wave flags over his head. If he makes any attempt to get away pull your safety strap and bring him to both knees and hold him there. As soon as he becomes quiet let him up on his feet; crack the whip around him, and in fact give him to thoroughly understand that these objects are perfectly harmless. After giving the horse two lessons he is ready to drive on the street.

Question. How would you educate a bad runaway horse?

Answer. The same treatment as a bad shier, only more severe.

Question. How would you educate and break a horse from running backwards with a wagon?

Answer. Put on my double safety strap, harness your horse up to the wagon, get into the wagon, take the lines in the right hand and the safety rope in the left; you say "back" to the horse. When he has backed as far as you wish him to, say "whoa," and pull the safety rope, which prevents him from backing any further. After giving three or four lessons in this manner the horse will understand what you mean by "back," and when you say "whoa" will immediately stop.

How to Drive a Horse up to Objects that he is Afraid of.

A practical way of driving a horse up to an object that he is afraid of is: Take the whip in your right hand, the lines in the left; when you are within ten or fifteen feet of the object, speak to your horse sharp and firmly, using about this language: "Get up there, sir, what is the matter with you; that won't hurt you;" at the same moment hitting him one severe cut with the whip; but do not repeat the blow unless it is necessary to hold him at his post. The moment that you have driven him up to the object he is afraid of, stop him, get out of your wagon and caress him, teach him that he is not going to be harmed, and by all means let him walk away from the object, never letting him go faster than a walk.

This same rule is laid down for saddle horses.

Question. How would you stop a runaway horse?

Answer. Always, when driving, hold your reins firmly, whether the horse is vicious or not; you should at all times be on your guard, as they are never to be trusted. If your horse should take fright and start to run away, take a firm hold of the left line with your left hand, reach down upon the right line with your right hand and say "whoa," sharp, and pull the line quickly at the same time that you give the command, but do not move the left line; this at once pulls your horse's head around to his side, and in nine cases out of ten will bring him to a stand-still; never see-saw the reins or pull upon both lines, as you have no power then to stop the animal. Never jump from the carriage, as more lives are lost and more limbs broken by being frightened and jumping from the carriage when the horse is running away. Keep cool and you will control the horse easily by following above directions.

Question. How would you drive a lugger or puller on the bit?

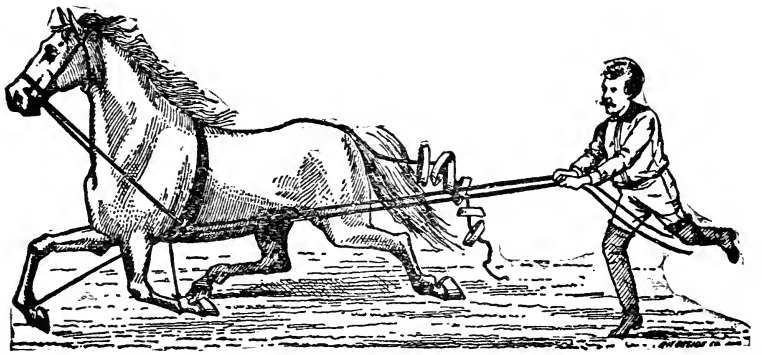
Answer. I would use a plain straight bar bit wound with rubber or leather, doing away with the check rein. It is necessary in order to drive a lugger successfully to give him three or four lessons on the word "whoa" and the word "steady;" teach him that when you

say "steady" it is to slack up in speed, but when you say "whoa," it is for him to stop.

See that his teeth are not sharp, and if they are, have them fixed at once. There is no law that can be laid down for the driving of a lugger only to use as gentle and soft bits as possible.

Question. How do you educate or break a vicious kicking horse so he will drive gentle and be fit for family use?

Answer. In the first place take your horse out on a soft place, or on the plowed ground, and throw him down by working as follows: Put a surcingle around his body; take a strap and buckle around the off front limb, below the fetlock joint; take a rope eight feet long and tie into that strap, bring it up over the horse's back; you stand on the nigh side of the horse and take hold of this rope with



O. R. Gleason's Double Safety Strap.

your right hand and pull his foot to his body; then you take hold of the halter with the left hand and pull his head around to you, placing your right elbow against the horse's side, using the words "lie down." He may fight for three or four minutes, but if you hold to his head and keep it pulled around to you he must go down; after he has been thrown, then take the rope and run it through the ring in the surcingle at his back, through the halter, back through the ring in the surcingle, then you take hold of the rope and if he

goes to get up pull the rope, and this brings his head to his shoulder and prevents him from getting up; then take tin pans, bells, rattle them all around him, then you can let him up; then you take and put on an ordinary open bridle, straight bar bit, using the pad of your harness, run the rings through the thill straps, then put on my double safety strap, which goes as follows:

Buckle the strap around each front limb below the fetlock joint, take a strap twenty feet long and snap in strap on nigh front limb, place through ring in surcingle underneath his body; draw through ring on off front limb back through ring in surcingle; step back behind the horse and take reins in right hand, pull on the left hand and commence to drive him; every time he kicks bring him to his knees; then take a back strap, attach to the reins with crouper and fasten on to that bells and one-half dozen tin pans, a bundle of straw, and drive him around with these articles hitting his heels; have another man take a pole ten feet long and rattle these pans and bells; carry the pole in front of the horse's limbs, and back behind his limbs, and every time he makes an attempt to kick bring him to his knees, using the command "take care, there, sir;" speak this very sharply and firmly; give him two lessons each day, each lesson not to be over one hour in length, and in five days your horse is thoroughly broke and will be gentle to drive to the carriage.

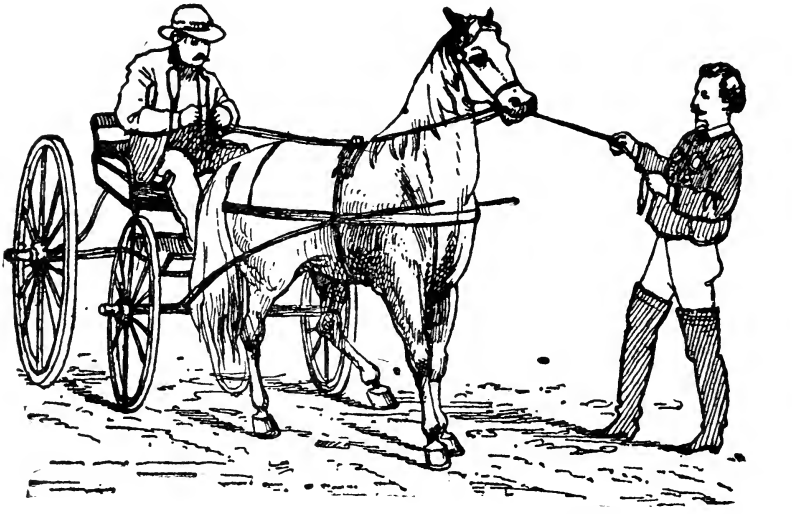
When working the horse, always use him on the soft ground where there are no stones; always use knee protectors, as this guards against any accident happening.

Question. How would you break a bad balker?

Answer. There are three or four kinds of balky horses; some are nervous and excitable, while others seem to have no ambition whatever. A dead-lifed balky horse, to my knowledge, is not worth breaking. All high-lifed balky horses can be brought under perfect control and thoroughly broke by following these directions:

Take your horse out and throw him repeatedly fifteen or twenty times; then put on the bridle and the harness, running the lines through the thill strap and telling him to "get up," and stop and back by the word of command. Teach him this thoroughly before you place him before the wagon. If he will not move forward

when you give him the word, take a rope or a strap twenty feet long, tie around his neck, and then place through his mouth, making a half hitch on his lower jaw, having one of your men standing directly in front of the horse with this rope in his hand, which I term as a guy line. When you give the word "get up," let him pull this rope at the same time, which will move the horse forward quickly. Now understand that the command and the pull of the rope must



both take place at the same time, in order for you to have success. Practice this two days, not making the lessons over one hour in length, then hitching him to a light vehicle, first working with your horse quietly and afterwards giving him to understand what you want him to do. Never make any false motion, never lose your temper, and always have plenty of patience, and you will meet with victory.

All Grades of Balky Horses.

I am asked the question almost every day, "can you break a balky horse?" Yes. "Can you break a balky horse so anybody can drive

him?" No. "Why?" Because it is impossible for me or any other man to break all the balky drivers in the land. Now there are many grades of balky horses. It is a habit of a great many persons, when breaking a colt, to hitch him up first beside of an old farm horse that is lazy, blind in one eye, and so old that he is deaf. When you have got this nervous, excitable colt harnessed beside the old, slow horse, you then take up the lines and ask your team to go. The colt plunges ahead, the old horse having spent many days in the harness, takes life very easy and gradually gets in motion. The colt comes back, the load don't move. The next time you ask them to go the old horse moves ahead, the colt sits back in the breeching. "Ha! ha!" your neighbor says, "got a balky colt there." Not at all. You certainly will have if you persist in your present course. Take him out of the double harness, break him to drive single, and you will have no trouble with him, single or double.

In handling a balky horse of long standing, one that has been spoiled by mismanagement, it is advisable to first throw him four or five times. Then put your harness on with an open bridle, running the lines through the thill straps, get behind him with a good whip, and teach him the words "get up." At the same time that you give him the command to move forward, hit him a cut with the whip, showing him that that means "move forward." Work with him in this manner for three or four lessons. You then tie a rope in the traces, carrying it around your back, and teach him to pull your weight, walking behind him. When you have got him so that he will turn right and left quickly, stop at the word "whoa," get up at the word and pull your weight, you can hitch him to a light road cart, getting into the wagon, giving him the word "get up, sir." If he should fail to go, have your assistant take a rope twenty feet long tie it around his neck, pass it through his mouth, back through the cord that you pass through his mouth, making a half hitch on the lower jaw. Let your assistant stand directly in front of the horse with the rope being slack. Hold your whip in the right hand, when you are ready to go give the word, and the man pulls the rope and you hit the horse with the whip, all at the same moment. If he don't move forward then, let the party who holds the rope step to the right and left, jerking his head until he moves forward, you using the words at each and every time, "get up, sir." Give him a few

lessons for three or four days in this manner, and in the majority of cases you have got a horse that will pull.

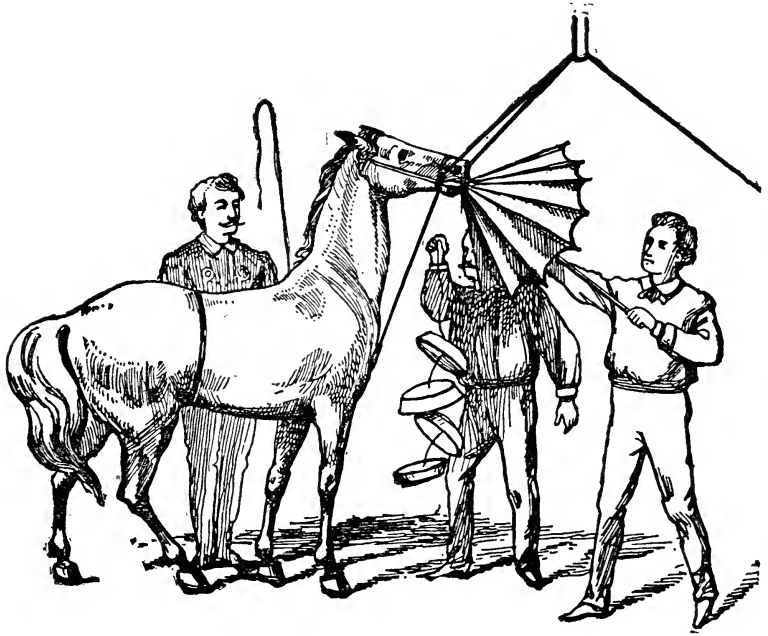
There are other balky horses that it is necessary to throw and give a good whipping. This character of a horse is generally of a sluggish disposition, and the only way that you can get it to go will be to frighten it with the whip. I had one horse that I could not work by any other means than as follows: I hitched him to a wagon and asked him to go, but he would not even straighten the traces. I got a man to take a good whalebone whip and stand at the side of the horse and whip him over the end of the nose. This I kept up for about ten minutes, just as hard as he could whip him. At the end of that time Mr. Horse got sick of balking and has never balked from that day.

There are other horses that it will be necessary to handle in a more quiet manner, but in some cases you must use the whip to get the animal frightened, so that when you speak to him he knows that he must move forward. When working a horse you must not leave him until you conquer him, if it takes twenty-four hours. But understand me correctly, don't lose your temper, don't use a club, don't kick him; use a good whip. Be careful and not hit him on the body or in the eyes. Use the whip on his legs and on his nose. I have started a great many balky horses by striking them with a whip around their front legs. This is a very tender spot and they won't stand long and take the punishment there. In working a balky horse, always keep a large stock of patience on hand, and don't think you are going to break him in two hours, because you are not. The moment he goes, reward him for it by giving him an apple.

Question. How would you break a halter puller?

Answer. Take a strap fifteen feet long and throw it over his back; reach under his body, take hold of the end of the strap and tie an ordinary slip-knot; have this knot come directly under the horse's body; place the strap between his front limbs up through the halter, and hitch to a post or to a ring in the manger; do not hitch the halter strap; then step in front of your horse with tin pans, blankets, umbrellas, and all kinds of objects, in fact, everything, and frighten him and make him pull if possible. After pulling back

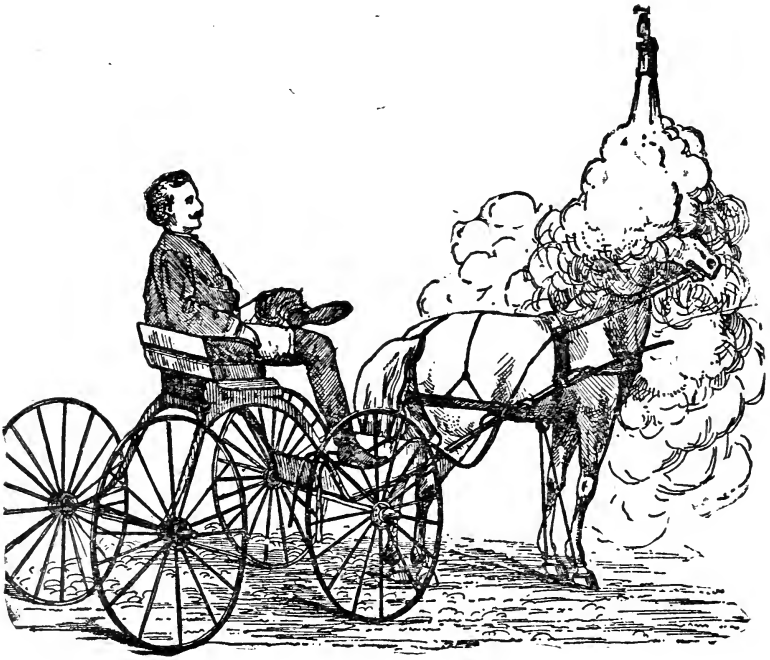
upon this strap he will not make more than the second or third attempt. Repeat these lessons twice a day for five days. This will break any horse of the habit of pulling on the halter if you follow my instructions.



Question. How would you educate a horse not to be afraid of cars or steam?

Answer. In taking a horse up to the cars put on the "*Gleason Bridle,*" taking the rope in your left hand, with the whip in the right, making the horse follow you, and take him right up to the cars and hold him there. It is impossible for him to get away from you or this bridle. You then should caress him and teach him that the cars are not going to hurt him. One of the main objects of your lesson should be to teach the animal that you are his friend and protector; get him to place confidence in you, and he will go through fire with you.

In driving a horse up to steam, I would advise the putting on o. my double safety strap, and run the reins through the thill strap of the pad, and drive him first up to the steam. If he makes a determined attempt to get away bring him to his knees. It may be necessary for you to use the guy strap, having a man hold the guy strap, that will hold the horse up to the steam; but you must be

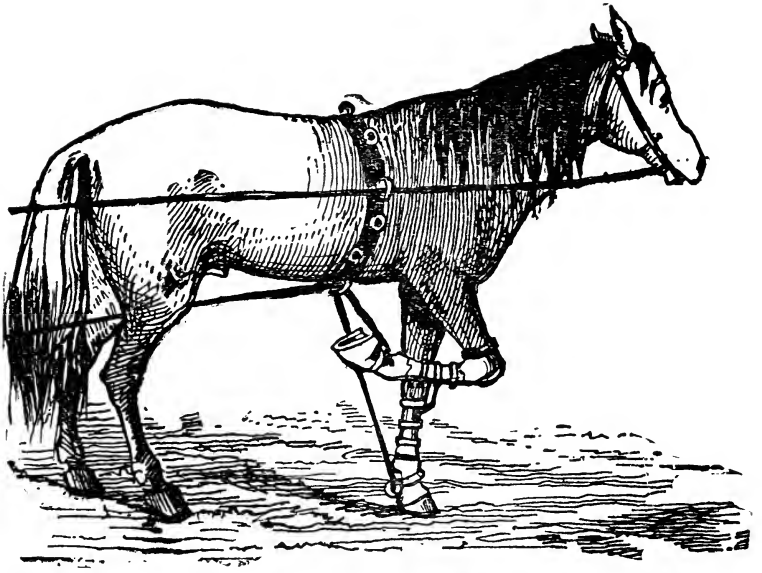


very careful not to get him burned or hurt him in any way, but teach him that the steam is perfectly harmless. As soon as the horse finds out that the steam will not injure him, you will find that in the second or third lesson he will walk right up to it from command of his master. Make your lessons short, but firm. I would advise, in training horses to steam, to take them up to a traction engine, or up to a mill where there is steam used, taking them to the cars afterwards.

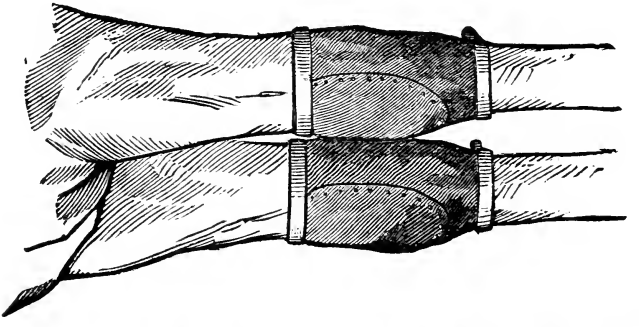
Another good way of breaking a horse to the cars, is to hitch your horse up beside a heavy team horse, where he cannot get away, and after he has been driven up to the cars four or five times he is then safe to drive to your single wagon.

Question. How would you break a shier?

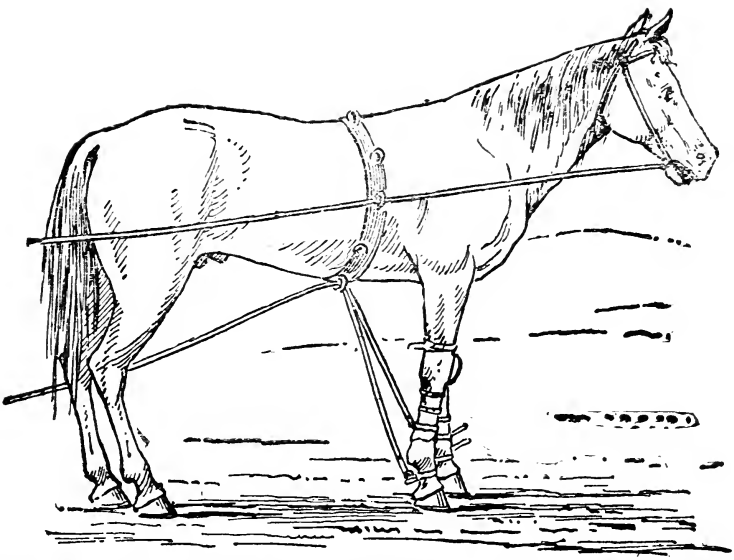
Answer. I would first place upon him my double safety strap, which is thoroughly described elsewhere, and make him thoroughly acquainted with the beating of drums, the rattling of tin pans, floating the "Star Spangled Banner," and the shooting off firearms, fire crackers, music, &c., by driving him right up to them and giving him to understand he will not be hurt. And by repeating this lesson every day, for three or four days, your horse has become thoroughly conversant with them and will never show fear when approaching them. Always in giving these lessons to your horse, bear in mind that you must be very careful that none of the devices you use must hit him in such a manner as to cause pain.



Showing position of Horse with one foot raised by the use of O. B. Gleason's Double Safety Strap. This is one of the Greatest inventions of the age for handling and controlling wild and vicious horses. More can be accomplished in thirty minutes than by any and all other methods in a day's time.



Showing Knee Pads as they should be Placed on Horse's Knees. Never Handle with the Safety Strap Unless you have these Pads to Protect his Knees.



Showing O. R. Gleason's Double Safety Strap, Knee Pads, &c. Also Lines run through Rings on side of Surcingle, ready for operation.

Question. What do you think of the word "whoa?"

Answer. It is the greatest command that we have in horsemanship; it is the habit of almost every person when driving to continually use the word "whoa." Now let me say to you that you should never use this word only when you want your horse or horses to stop. If you are driving along a street and you come to a crossing or a bad place and you wish your horses to slack up in speed, use this language to them: "Steady there, my boy;" but when you wish them to stop, speak out sharply and firmly "whoa." If you will practice this when you are driving your horse, in two weeks you will have him so that he will understand every command that you give him.

Never use one word with too many meanings. You must never lie to your horse and never deceive him or make false motions; if you do you will never make a success as a trainer of the horse.

Mankind are too apt to depend upon their own strength to beat the horse, without making any use of their reasoning powers to outgeneral him; and, in many instances, such an exercise of tyranny over the horse only engenders a rebellious spirit on the part of the animal. Therefore, lay aside your strength and use your reason. Be moderate, be temperate. No man can become a good horseman and not have first learned to control himself before he attempts to control the animal. Be firm, be persevering, be honest. Never lie to your horse Endeavor to have him understand what you want, and do not confuse him by attaching different meanings to the same word. It is quite common to say "whoa," when it is only intended to go slower; or, when the horse has not stirred a foot, to let him know of your presence; and then when you want a "whoa," when your life may depend upon your having a good 'whoa" upon your horse, you find you have not got it. You have played it entirely out of him. Never say "whoa" unless you mean to stop right there. Speak always in a natural tone of voice, under all circumstances.

Have your horse understand, by examination and experience, that the things liable to frighten are harmless, and be sure not to whip him for being frightened. Always let your horse face the object of fear; and, when frightened, remember the slower you move your horse the more power you have over him. There are times when letting a horse trot is almost as bad as letting him run away.

Fear is something a horseman should never exhibit in his countenance or voice, as the horse is a close observer, and soon learns to take advantage of such indications to become careless of control, if not indeed aggressive. Let your lessons thorough but not very long. Be gentle and patient with th colt, but make the willful stubborn horse feel the full extent of wer, till he submits. Though if he should become much heated and excited, it is prudent to stop and repeat the lesson at some future time—repeat until there is thorough and unconditional submission. Let your treatment be characterized by gentleness afterwards.

Question How would you get a horse up when he throws himself?

Answer. Blow in his ear; if he does not get up by this, take a glass of water, or a dish of water, and pour in his nostrils; he will rise to his feet very quickly. And in the handling of a mustang, which becomes very stubborn and sulky, sometimes this treatment will fail on them, and it will be necessary to take a light whip and use it on the end of the nose. They will soon learn that when they throw themselves they are punished; and when they don't they are rewarded. In this manner you teach them right from wrong.

Question. How do you start a balky horse in double team?

Answer. After you have taken your horse out and given him a thorough handling, then hitch him up beside an honest, true horse that will pull every time you ask him. Take a half-inch rope and tie around the balky horse's body, right in front of his hips, in an ordinary slip-knot; have this knot come directly on the side of the horse, then carry the rope over the wagon pole and hitch to the true horse's collar. Get into your wagon, pick up the reins, and hit the true horse a crack with the whip, saying, "Get out of here." When you do he will jump and take the rope with him, and when he does the balky horse must come.

Question. How would you break a horse from being afraid of a dog or a hog?

Answer. Handle the same as for shiers. Keep one eye on the hog and one eye on the horse. In order to break your horse of this habit it will require five or six lessons.

The best way to break your horse of being afraid of a hog is to take a small pig right into the buggy or break-wagon, or whatever you are using, having the horse worked with open bridle; but be sure and have on my safety rope, as when he sees the pig and the pig squeals, you will find things will get very interesting; but the moment he starts to run say "whoa," sharp and firm, pull the safety rope and bring the horse to his knees.

If it is a dog that he is afraid of, let the dog run around him and in front of him; put the Gleason bridle on the horse and make him come up and smell of the dog; walk around him. Then throw your horse and hold him down, and take the dog and put him on top of the horse. Work like this two or three days with the animal, giving short lessons, and you have got the best broken hog and dog horse in the world.

Question. How do you use the whip? Do you believe in whipping a horse?

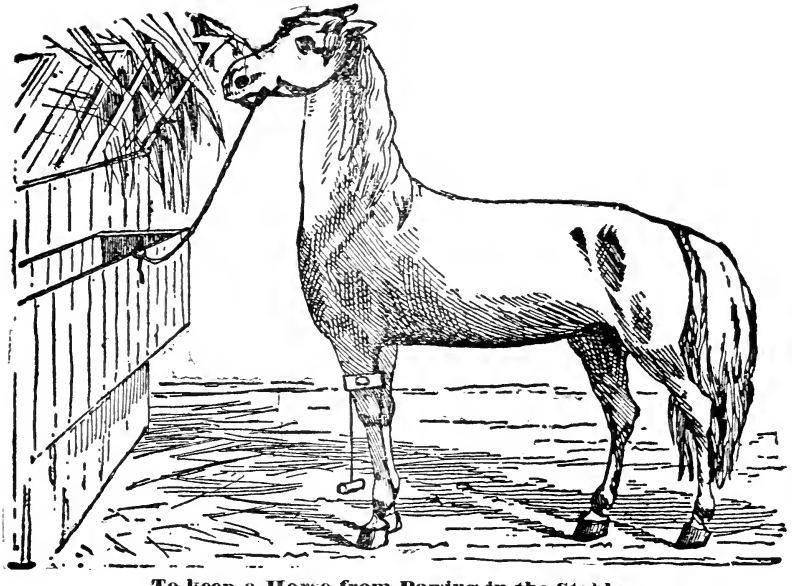
Answer. No lady or gentleman should ride or drive a horse without having with them a good whip. The whip in its place is a good instrument, but it is very often misused by parties; for instance, how many do you see driving through the streets of our cities, and in our public parks, that if a horse becomes frightened at a bicycle or a band, or any object whatever, and he makes an attempt to shy, will get him by it the best way he can, and the moment he has passed the object out comes the whip with the words, "I'll teach you to shy," and the horse receives a severe punishment. The horse, not having the reasoning power that you have, believes that the punishment that he has just received has come from the object that he was so much frightened at.

Question. How would you keep a horse from pawing in the stable?

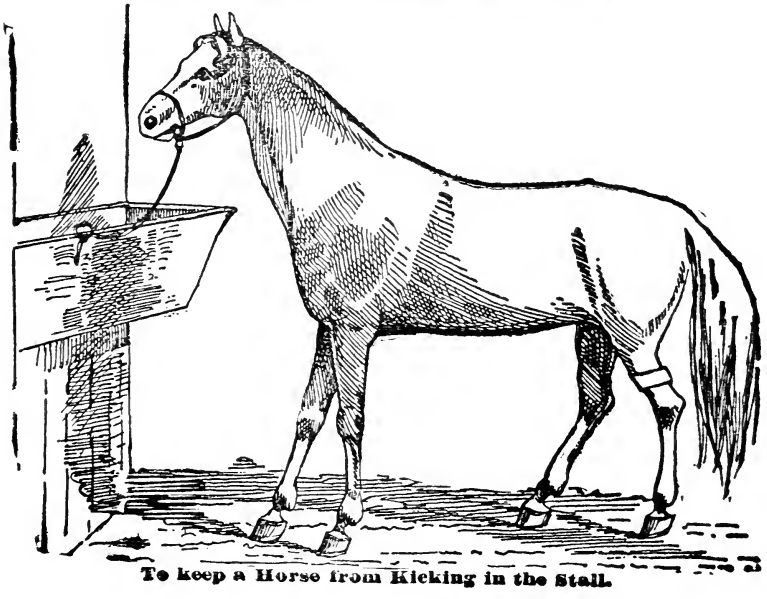
Answer. Take a piece of chain seven inches long, not a plow chain, but trace chain; tie on one end of that a piece of hard wood five inches long and one inch in diameter; then take a strap and buckle around the horse's limb, above the knee, letting this chain and wood hang from the strap. Every time the horse paws this piece of wood will hit his limb, and as he cannot think of two things at one time, it will draw his attention in such a manner as to prevent him from pawing.

Question. How would you keep a horse from kicking in the stall?

Answer. Take a piece of elastic about ten inches long, sew a vest buckle one end of it and buckle this around the horse's hind limb.

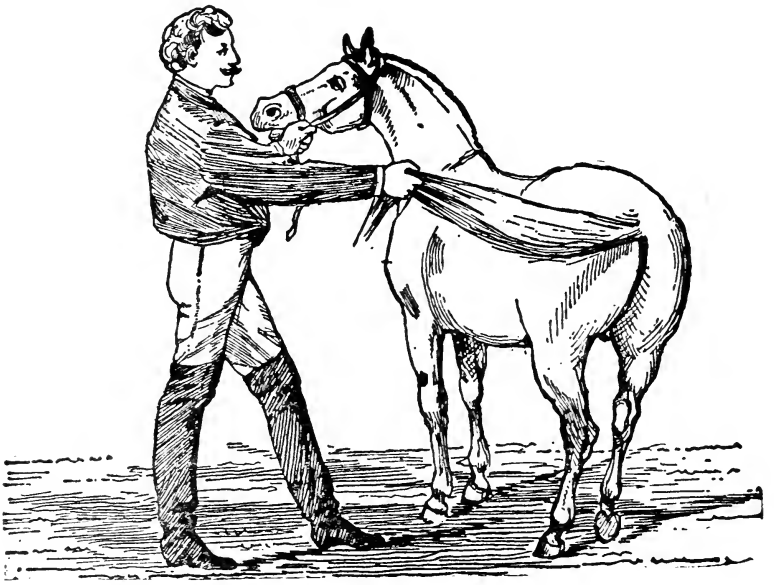


To keep a Horse from Pawing in the Stable.



To keep a Horse from Kicking in the Stall.

above the hock joint. When the horse kicks the leader must expand, the result is the elastic prevents it from doing so, and the horse's habit of kicking in the stall will soon be broken up. Never use a strap or rope; if you do it will stop the circulation. In all cases use the elastic.



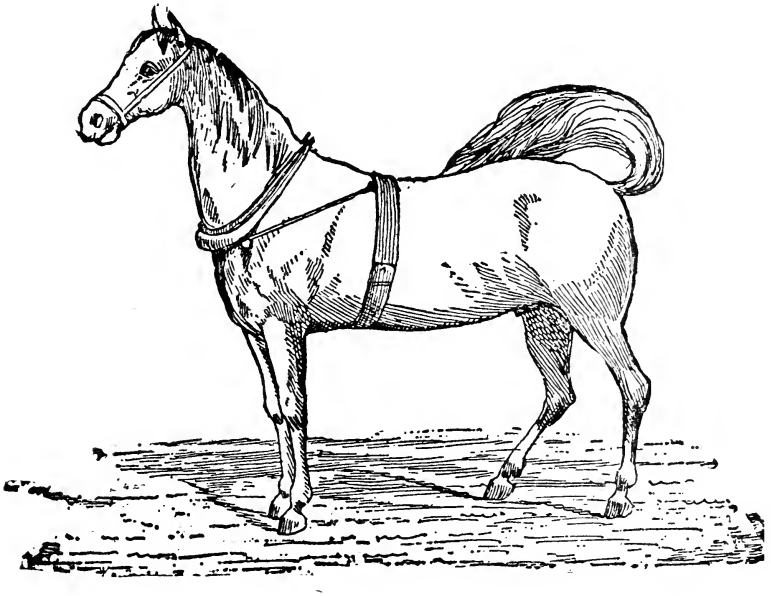
Question. What do you think of whirling a horse by his tail?

Answer. If you have a horse bad to harness, or will not stand to be bridled or saddled, take the halter strap in your left hand, take hold of the horse's tail with your right hand, and whirl him around eight or ten times. He will become dizzy, and the moment you let go of him he will stagger or fall. Then say "whoa;" pick up your saddle, harness or bridle, or whatever you want to put on him, and you will find that he will stand perfectly quiet. It is a quick and effective method.

Never tie your horse's head and tail together, but follow the above instructions.

Question. **How would you break a horse from switching his tail?**

Answer. Place on the horse a collar and hames, and then take hold of his tail. Take a wooden pin five inches long, one inch in diameter, lay directly across the hair of his tail, double the end of the tail over the pin; then take a rope eight feet long, in the middle



of the rope make a slip-knot and fasten over the end of the tail and pin; then bring the horse's tail up over his back, bringing one of these ropes down to the ring of the hame and tying it, and on the other side in the same way; the rope prevents the tail from going either side; take an ordinary cloth surcingle and put that over and around his body; leave the tail up in this manner for six hours; if a very bad case, repeat three times. This is the best method I ever used, and will surely do its work.

Question. How would you educate a horse not to be afraid of fire-crackers?

Answer. Hitch him to a wagon, put on my double safety strap, and drive him right up to the fire-crackers, and if he goes to turn around with you or run back or run away, pull the strap, which will immediately bring him to his knees, but do not hold the strap. As soon as he comes to his knees loosen the strap and pull the lines,

using the command "whoa, sir." Now have boys throw fire-crackers under him, all around him, up in the air, and if he makes any attempt to get away say "whoa," sharp and firm. For you to meet with success with a horse of this character, or, in fact any horse, you must talk to him, always speaking distinctly and firmly. After you have given the horse two lessons he will pay no attention to fire-crackers.

Question. How would you educate a horse not to be afraid of paper and umbrellas?

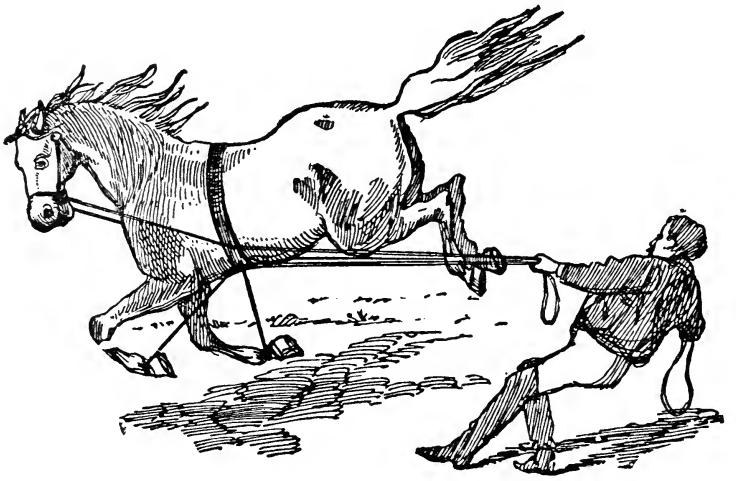
Answer. Put on my double safety strap, take your horse out into the field where there are boys with flags, paper, umbrellas, and drive him right up to the flags, paper, etc.; if he makes any attempt to get away, bring him to his knees; if necessary, throw him; have

the boys wave the flags over his head, throw the paper up in the air, put umbrellas over his head, drive him over the paper, drive him over the flags, drive over the umbrella, make him step into it, stand on it, in fact, teach him that these objects are perfectly harmless. Two lessons a day for two days, not having the lesson over one hour in length, will thoroughly break your horse. The most dangerous shier can be thoroughly broken by following the above directions.

Question. How would you break a plunger or bolter?

Answer. Put on my double safety strap, and when he plunges in the air pull the strap, when he will come down on his knees. He will not plunge over three or four times before he will be sick of his job. Then introduce him to drums, pans, bells, and, in fact, give

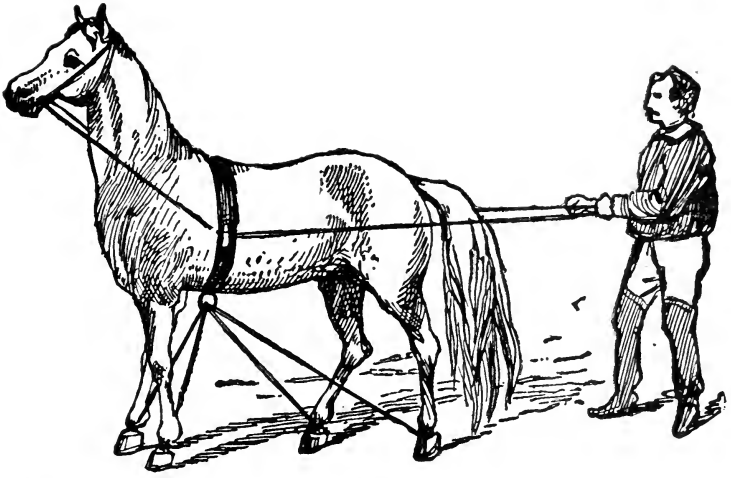
him a general handling in the same way that I control kickers. After giving two lessons he will not bother you about bolting or plunging. If he should bother you in bolting on the street, or at any certain place, take him right there and handle him with the safety strap. If he should be inclined to balk, use guy lines as laid down for breaking balky horses.



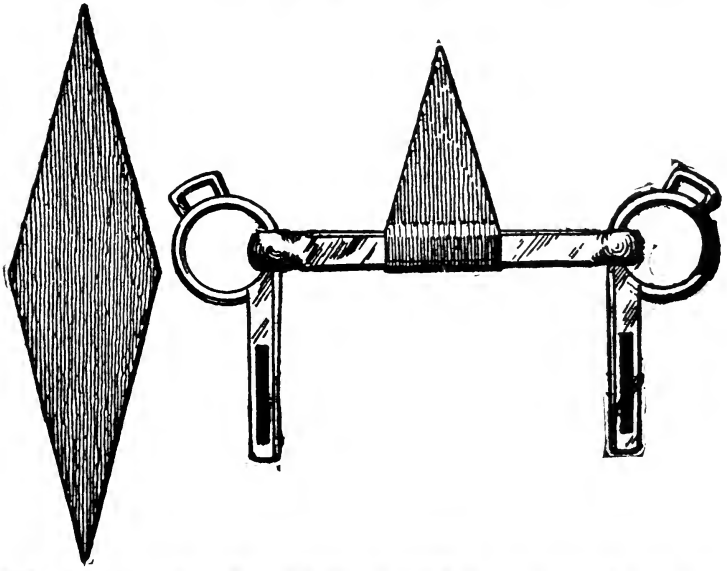
Take four hame straps, or similar small straps, buckle one around each pastern. Then run a strap from the near side foot to the off side hind foot, passing it through the ring in the surcingle under the horse's body; also one from the off side front foot to the near side hind foot, leaving the straps loose enough to give the horse full use of his limbs in trotting or walking. When he kicks he will draw up his fore feet, striking on his knees. He will soon cease to kick.

Question. How do you prevent a horse from putting his tongue out of his mouth over the bit?

Answer. Get a piece of sole leather seven inches long from point to point and three inches wide. (See engraving.) Lay a straight bar bit in the middle of the leather, bringing the points up together.

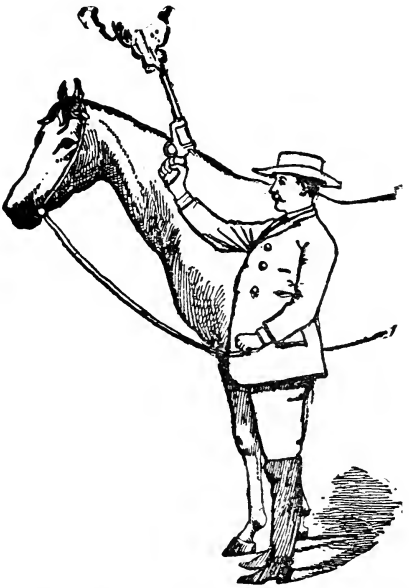


Manner of Driving and Breaking a Bad Kicker when all other Methods Fail.



To Prevent a Horse from Putting his Tongue Out of his Mouth Over the Bit.

Sew it on to the bit so it cannot turn, and sew up the sides. Put this in your horse's mouth over the tongue, running backwards toward the throat. He cannot get his tongue back far enough to get it over this leather. It is very simple, and will only cost you fifteen or twenty cents. It is the best I have ever used.



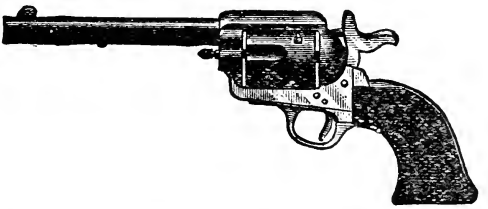
Teaching a Horse how to Stand while Shooting over his Back.

Put on the Gleason bridle, take it firmly in your left hand and take a revolver loaded with blank cartridges in your right hand; every time you discharge the revolver say "whoa" and pull the bridle sharply. Teach your horse that the sound and smoke from the revolver will not hurt him. Work in this way for thirty minutes at a time for three or four days and your horse will pay no attention to firearms.

With very nervous and excitable horses it is sometimes necessary to throw them and fire several times, showing them that they cannot get away, and that there is nothing to be afraid of. Follow these

nstructions, and you will be surprised to see how quickly your horse will understand that you are not going to hurt him.

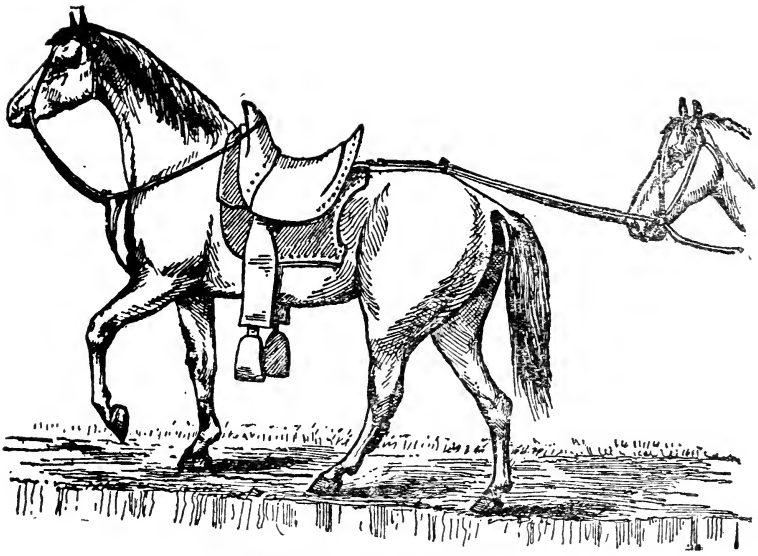
How to approach a biting horse: Always do so with a revolver heavily loaded with blank cartridges in your right hand. Advance this hand toward the horse's mouth, the muzzle pointing past him, so the powder will not burn him. If he attempts to bite you, at that instant shoot off the revolver. Every time he makes the at-



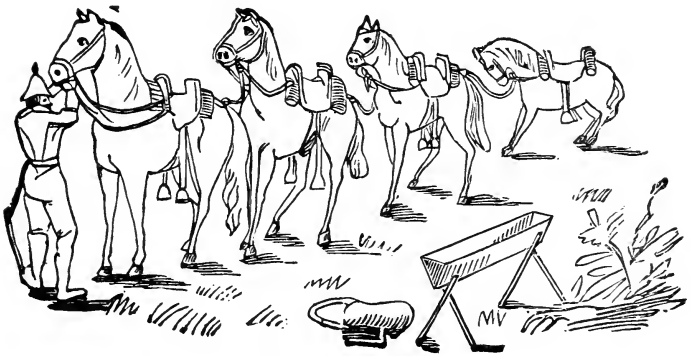
Revolver used by O. R. Gleason in defending himself from the Monson's Biting Stallion Rysdyk.

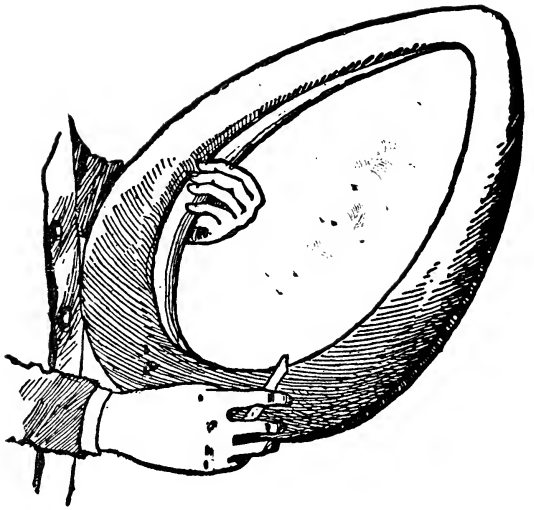
tempt repeat the shooting. This causes the horse to think the biting causes the explosion; this he wishes to avoid, and will soon cease to bite at you. The old theory of clubbing a horse only adds to and increases his vicious temper. This is an original method of my own, which I have successfully used in handling Rysdyk and many other vicious biting stallions.

In leading horses in battle have the saddles made with a back-strap and crupper, having an inch ring attached to the crupper; then have a strap four feet long with an ordinary driving snap sewed into each end of it. While riding, snap one of these snaps into the ring of the bit, then the other end of the strap into the ring of the saddle. In dismounting and hitching a large number of horses together, unsnap the line from the saddle and snap that into the ring on the crupper of the front horse, as seen in the above engraving. By this method two men are capable of controlling twenty horses at one time, leading them or holding them. The only extra cost would be attaching a back-strap and crupper, and the short four-foot line.



Leading Horses in Battle.





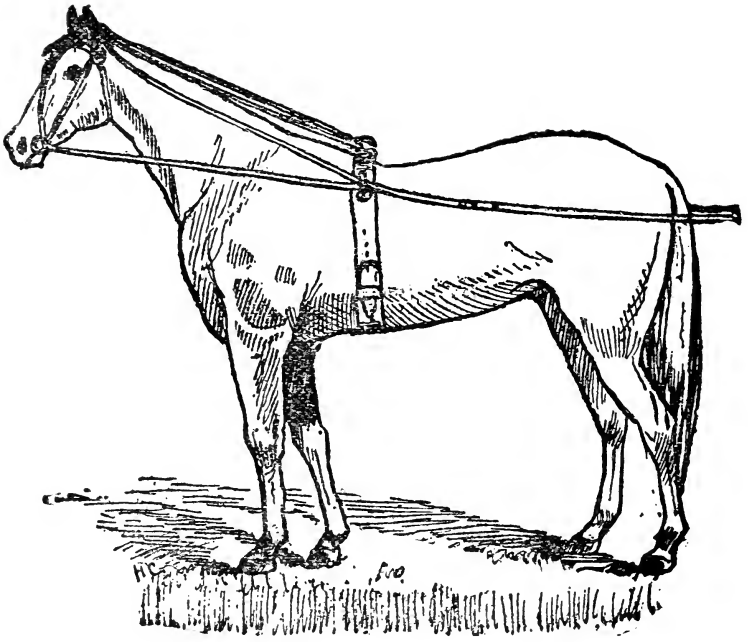
Cleaning Collars.

They should be cleaned two or three times a week, collars that are in constant use, as the accumulations that gather upon the surface next the shoulder of the horse becomes rough and uneven. If it does not gall it irritates and annoys the horse when he is required to pull, causing him to try to avoid the irritation or pain, and often makes balky horses.

Harness and Saddles.

Harness used on all draft horses should be carefully cleaned regularly once a week. Collars should be cleaned daily, thoroughly scraping all scurf arising from heating the horse from the collar before it is used a second time. Always have your harness properly oiled and pliable, so that it will fit the horse as a boot fits a man.

Saddles should have the same care and attention, and great pains should be taken that the saddle fits the back, to prevent galls and sores. This is almost universally neglected.



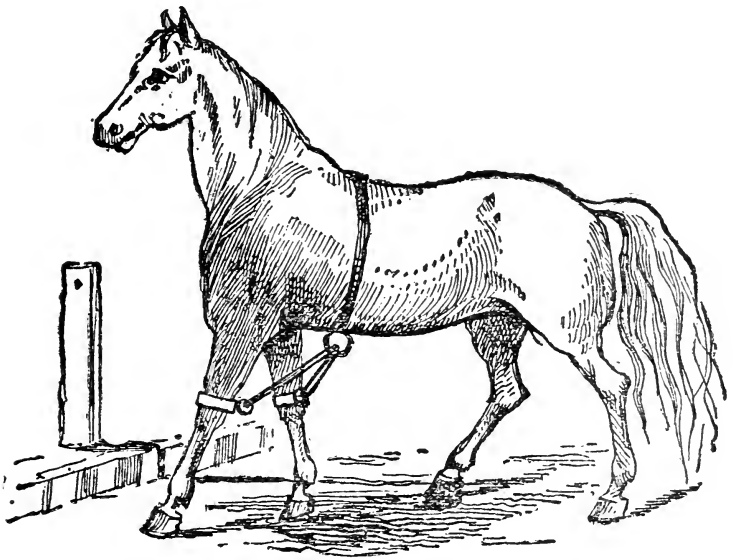
Double Draw Check Rein.

Use one-half of an ordinary kimble and jack check rein. Have a strap fourteen feet long, place the middle of this strap around the check hook, carry the ends up through the little rings in the kimble and jack rein, bring them back, pass them through the terret rings with the lines. Have a buckle sewed on the lines about six inches back of the rings. Buckle this check into the lines, and you have a bridle check that the harder you pull the higher you lift your horse's head. This check is used for driving kickers and runaway horses and very bad pullers. (See engraving).

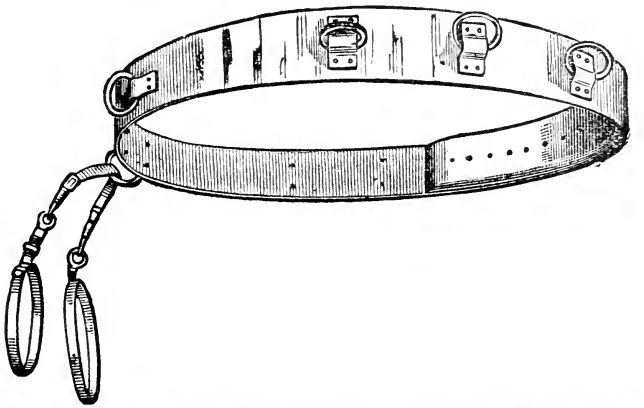
Question. How would you keep a horse from jumping over a fence?

Answer. Buckle around his body a surcingle with a two-inch ring directly under his body; take two straps with an inch ring in each end and buckle them around the horse's front limbs, above the knees;

then take a strap thirteen inches in length with a driving strap in one end, strapping one of them into the ring on the off front limb;



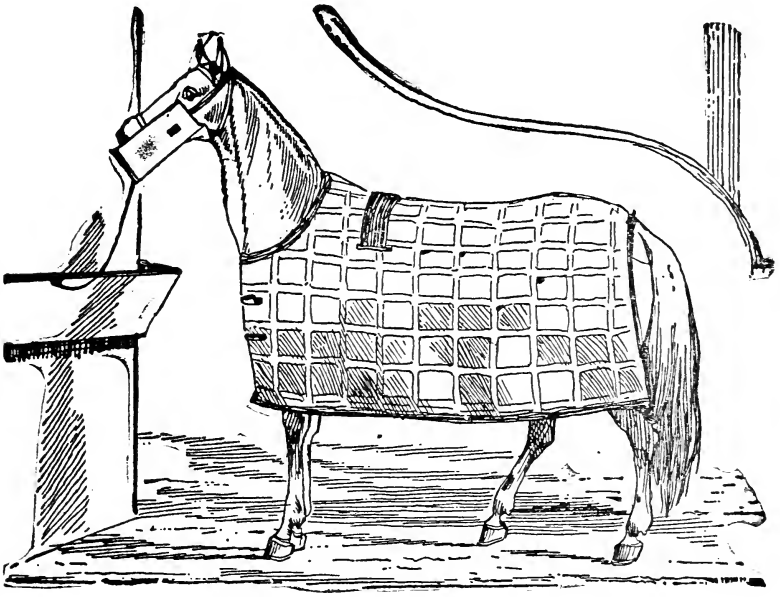
bring through the ring in surcingle and strap into ring on nigh front limb. The horse can walk and trot, lie down and get up, but he



Showing Jumping Rig as used by O. R. Gleason to break Fence Jumpers.

cannot run or jump, as he cannot move both front feet at the same time. This can be used upon colts as well as horses.

Question. How would you keep a horse from tearing his blanket in the stall?

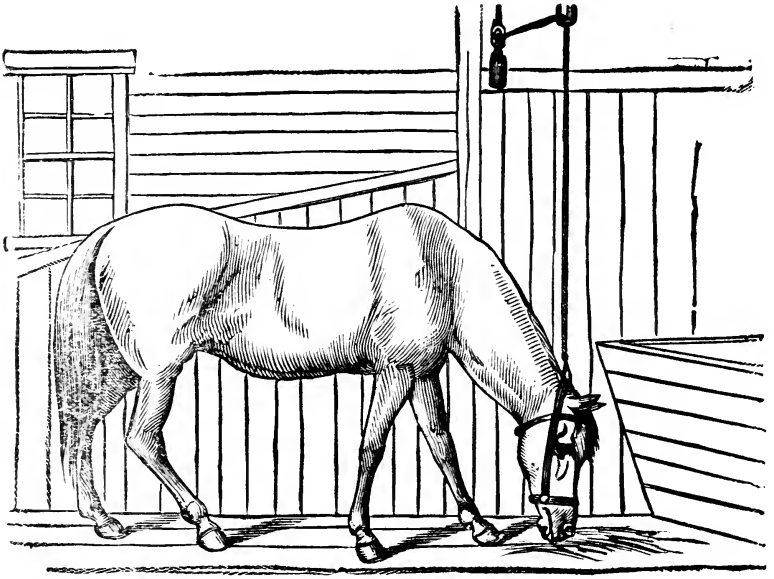


Answer. Sew a piece of leather about five inches square on each side of the halter, letting it come down even with his mouth; when he reaches down to grab the blanket he will have to chew the leather.

Question. How would you keep a horse from getting cast in the stall?

Answer. Put on the horse a halter; sew a ring in the halter over the horse's head; on top of the stall drive a staple and ring; at the side of the stall drive another staple and ring, take a rope ten feet long with a driving snap threaded into one end of it; feed your horse from the floor with a manger of oats. When

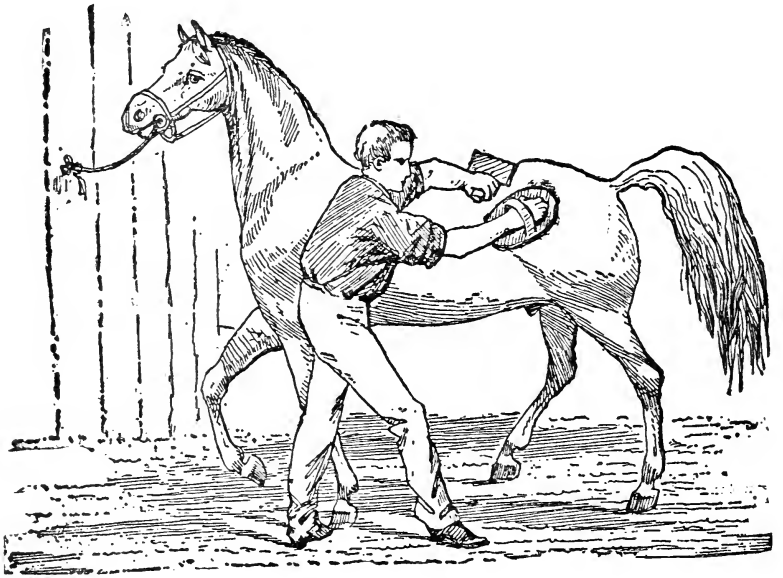
your horse's head is down, snap this rope into the ring on top of the halter and pass up through ring over his head, through ring on side of the stall and hang a weight there; that will take up the slack of the rope the moment that he raises his head. Hitch him in this way only; he cannot roll over or get cast in the stall, as you will see it is impossible for him to turn his head around.



Question. What do you think of grooming a horse?

Answer. When you are grooming a horse you must remember that horses are like people, some have a very thin skin and are very tender. One-half of the grooms of to-day when using their curry-combs and brush, bear on with the curry-comb as hard as possible, the result is that a thin skinned horse cannot and will not stand it. I have seen many high-bred horses, trotters and runners that have been made vicious biters and strikers, caused by ignorant grooming. Now when you find a horse that has a very thin skin run the curry comb over him light and easy and soft as possible, getting most of the dust out with a good brush,

using directly after the brush straw, and rub him thoroughly with it; then use a rubbing cloth, which will put on a polish. One of the best methods for cleaning and caring for a horse that has been driven fast and comes into the stable very warm, is to take a meal sack, turn it wrong side out with meal all over it, rub this meal right into the hair, rub him as near dry as possible, put the blanket on him as soon as he is dry, then you can use the curry-comb and brush and clean the horse as usual; this will leave him in fine condition. The meal will make the horse's hair glossy and shine like a blackened boot.



A horse should be cleaned but once a day, and this should be at night, after he has done his day's work; in the morning merely straighten his coat and clean off what dirt may have collected in the stall during the night. My reason for giving a horse a thorough cleaning at night is the same that you would do yourself after a hard day's work; taking a good wash and general cleaning up refreshes you wonderfully.

What is good for man is good for the horse; they need the same care and treatment. This method, you must understand, I mean for work horses.

Question. How do you teach a horse to back?

Answer. Put on the "Gleason Bridle," drawing the strap in your right hand, and stand at the horse's shoulder; press your left hand upon his neck; use the words "back, sir," and pull the strap at the same time. This will give the horse a severe jerk in the mouth and he will back four or five inches. The moment that he does so caress him and teach him that he has done right. Then repeat the lesson again and again, until shortly the horse will back any distance for you at the word of command. Some colts will be very stubborn and fight you for five or ten minutes; but keep at them, always having plenty of patience, and at last you will gain your point.

Question. What do you think of bitting a colt?

Answer. If nature has not designed the colt to have a high head and carriage no art of man can alter it, and the old fashion of strapping up the neck in an unnatural position and leaving it there for hours, in nine cases out of ten, results in a heavy headed lugger on the bit. I do not believe or endorse the working of the old-fashioned bitting reins. I simply use the Gleason Bridle, teaching the colt to turn his head quickly to the right and left, stopping at the word "whoa." I then take and put on an ordinary open bridle and straight bar bit, teaching him to guide by line quickly and easily; working in this way with a colt for three or four days, then you can put on the check rein and check him up to his natural position. The next day you can check him a little higher, and the next day a little higher yet; then you understand that the horse generally elevates his head, works pleasantly upon the bit, and you are not getting him mad nor breaking down his constitution by forcing and straining him with the old-fashioned bitting reins.

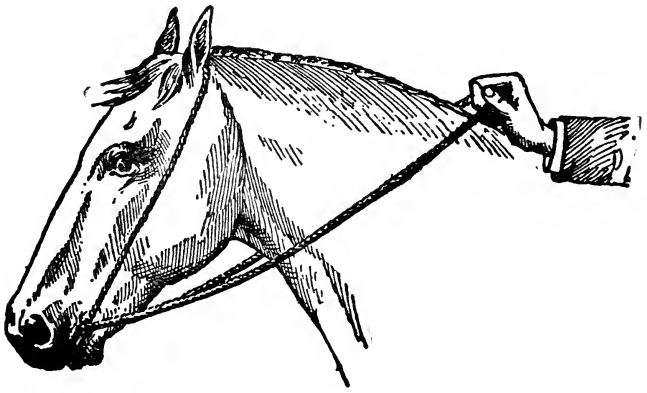
Question. How do you make your single riding bridle?

Answer. Take strap eight feet long; place the middle of this strap on top of your horse's head, carry it down the side of his face, placing each strap through his mouth, bringing the ends up to the back, and the riding bridle is complete.

This bridle is simple and useful, handy to ride a horse to pasture, or to exercise horses with.

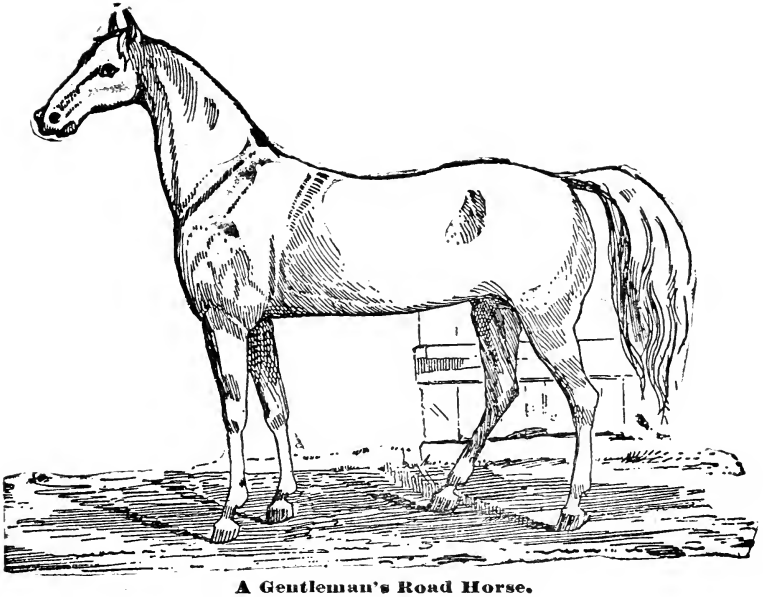
Question. How do you teach a horse to lie down at the word of command?

Answer. Take him out into a field or nice soft place and throw him twelve or thirteen times, using the words "lie down," plain and distinct. After you throw him, let him lie quietly for about five minutes; caress him; feed him an apple. Do not make your lessons over an hour long. The third day, by taking a little riding-whip and touching him on the knees, using the command "lie down," he will obey you quickly.

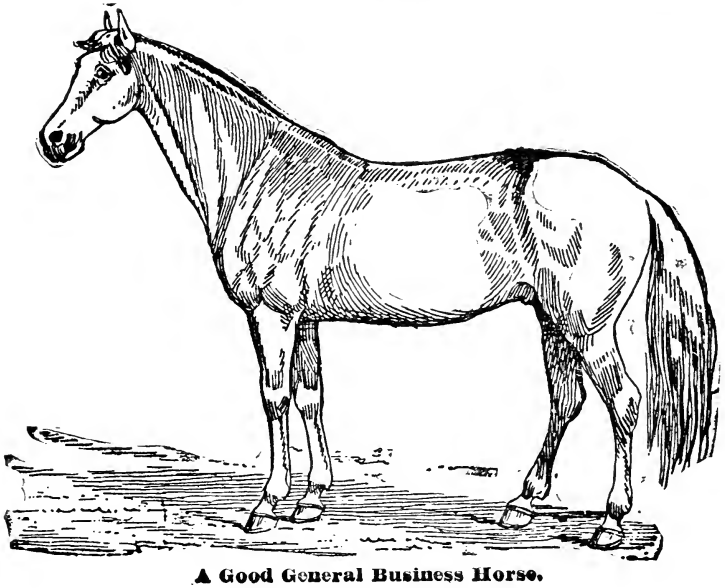


Gleason's Simple Riding Bridle.

In order to make this bridle, take a piece of strap nine feet long, place the middle of it over the top of the horse's head, bringing it down over the cheeks, pass through the mouth from each side, bring the ends up and use as reins. This is very simple and will often be found very useful to the farmer.



A Gentleman's Road Horse.



A Good General Business Horse.

Question. How would you educate a horse not to be afraid of fire-arms or gunpowder?

Answer. Throw him and hold him down, taking a revolver loaded with blank cartridges, fire it off in the air. If he makes a move to get up make him lie down by pulling the strap; repeat this and make the lesson thirty or forty minutes. The next day give him another lesson and in three days you have taught your horse so that he will pay no attention to the report of a gun. The theory of this is very simple. All that you have got to do is to convince a horse that you are his friend and he is not going to be harmed.

Question. How would you educate a horse not to be afraid of buffalo robes, blankets, etc.?

Answer. Take the Gleason Bridle and put on to his head, holding the strap in your right hand; take the buffalo robe or blanket and hold up to the horse's nostrils; let him smell of it; at first he will make a desperate attempt to get away from you; as he does, you pull upon the bridle, using the words "stand, sir;" then let him smell of them again, and every time that he makes an attempt to get away from it tighten upon the bridle, and always talk to your horse, using the words "stand still, that will not hurt you," or any other words that you may think proper. Repeat these lessons three or four times, throwing the robe over his head, making him walk over it, and teach him that you are his friend and protector. In a short time he will gain confidence in you, and whatever you ask him to do he will be willing to perform.

Question. How would you break a horse from biting in the stall?

Answer. Use the Gleason Bridle, having the long strap hang over the side of the stall where you can reach it handy, and when you go in by the side of the horse, if he makes any attempt to kick at you, strike or bite, give him a severe pull upon this strap, at the same time using the words "take care, take care, sir."

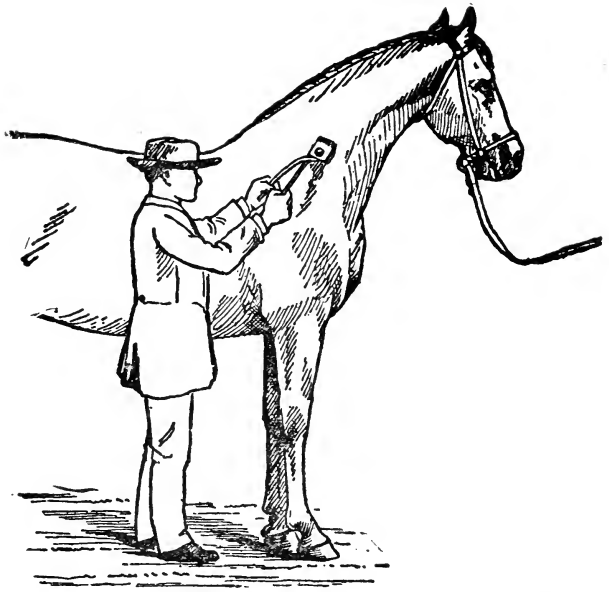
This bridle is very valuable for teaching horses to follow you. Take hold of the strap with your left hand, stand directly in front of your horse, taking a buggy whip in your right hand; you crack the whip and say "come here," at the same time pulling the rope. Keep practicing this on the horse for 20 or

Showing Double Safety Strap on Off Horse in Double Team, Used in Driving a Bolter or Plunger or any General Mean Horse in Double Harness.

30 minutes; he will soon understand that when you crack the whip that it means for him to come to you. As soon as he comes to you pat him or caress him, feed him an apple, and after you have given him two or three lessons you can call him from almost any distance by the crack of the whip.

Question. What do you think of clipping horses?

Answer. For driving horses who have a thick coat of very long hair, I would recommend clipping, for in such cases the horse can be much more easily taken care of, and really, I think he is benefited by it. But, in all cases, when you remove nature's covering you must substitute another, in the way of warm



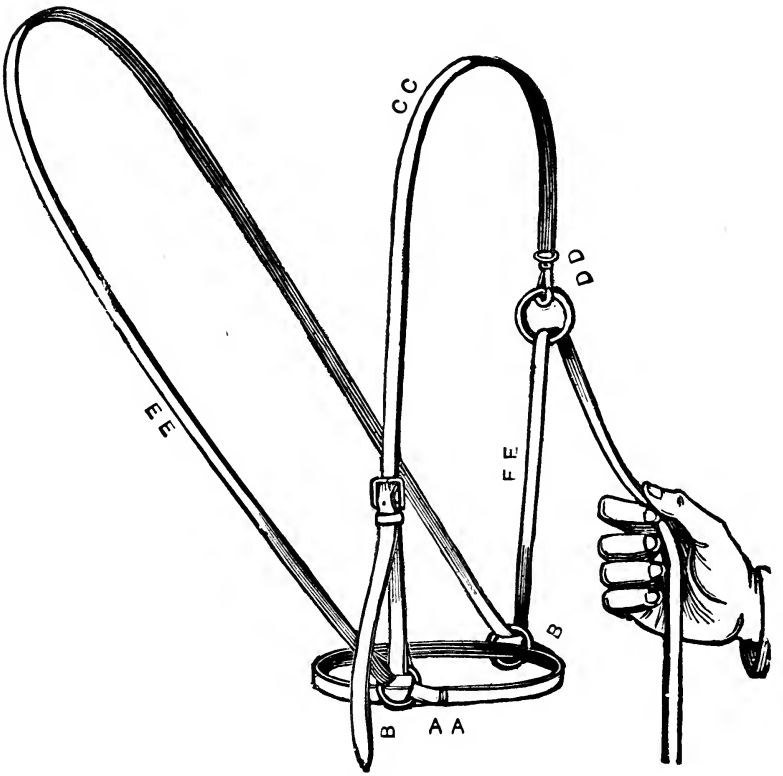
blankets, &c. When a horse's coat of long, thick hair is allowed to remain as nature has calculated it, as a protection from the cold, storms and rigors of winter, when taken out and speeded the perspiration arising from his body causes his hair to become thoroughly saturated, and then when he comes to stand still, it becomes cold and consequently chills the horse through, and not only makes him very uncomfortable, but he is quite liable to take cold and have inflammation of the lungs, "epizootic," &c. Whereas, if this coat of thick and long matting of hair, which gets so sour when it becomes wet, and, as all horsemen know, always retains the dust and excrements of the horse's body, is removed and proper care is taken of covering him, his coat can be kept looking so much nicer and with less labor, and the horse's skin will be in a more healthy condition. The same rule will apply to work horses, if they can have the same care.

The question is often asked me if I approve of clipping the fetlock. I answer, Yes, on driving horses only. All team horses and heavy draft horses should be left their natural fetlocks. After driving your horse in muddy weather, let the mud dry on

his feet and legs. Then clean it off with a brush. Do not wash your horse upon coming in from a muddy drive. By following my instructions in this particular you will prevent scratches, greased heels and many other disagreeable diseases of the leg.

The Celebrated "Gleason Bridle."

For training and handling horses of all vicious habits, no ropes or cords to lacerate the mouth is recommended by me.



Having up to this time, during my professional career' used ropes in lieu of straps, for my Bonaparte and Eureka bridles, I now

abandon the rope entirely on many accounts and have made and patented a bridle constructed of leather and iron rings of which the preceding engraving is an exact illustration, and is described as follows:

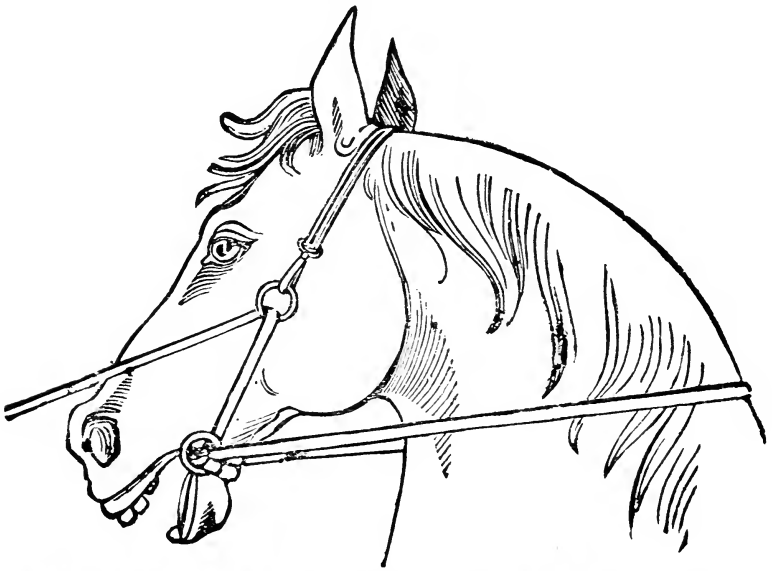
A A is a mouth piece or loop for the lower jaw of the horse to pass through, leaving upper part of loop in horse's mouth and lower part under his jaw. The part of loop in the mouth is round to guard against a possibility of lacerating the tongue or mouth of the horse.

B B is an iron ring, one inch in diameter, each side of the mouth, sewed into loop A A.

C C is a strap three feet long, that passes directly over the head close to the ears, with a buckle so as to take it up or let it out to suit the horse's head you are going to handle.

D D is a solid, heavy iron ring, one and one-half inches in diameter, sewed on strongly to strap C C, and is used for strap E E to pass through.

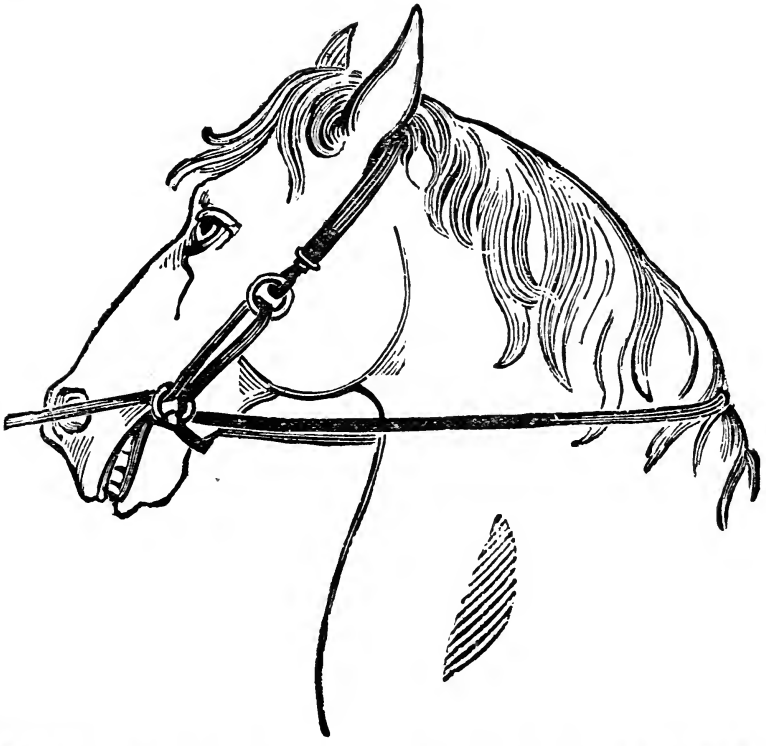
E E is a half-inch strap of leather, fifteen feet long, one end of which is sewed into ring B B on the off side of the horse's head. This strap is then passed over his neck to his withers, is then brought down through ring B B, on near side, then up through ring D D, then brought down through ring B B.; the long end of strap E E is held in the right hand, this gives a man power to control a vicious horse who is afraid of buffalo robes and umbrellas, to lead a horse up to steam or anything he is afraid of, also to control or handle any vicious horse, as the bearing comes directly on the horse's neck by the strap E E and pressure upon the brain by the strap C C. The entire bridle consists of three pieces.



Bridle Displayed upon the Horse's Head and Ready for Operation.

This bridle will be known as the "Gleason Bridle," and used by him in handling all wild and vicious horses.

When you pull upon the long strap, you will find the horse will quickly follow you, and can be made to stop at the word "whoa!" or obey any command you may give him, and there is no danger of making his mouth sore.

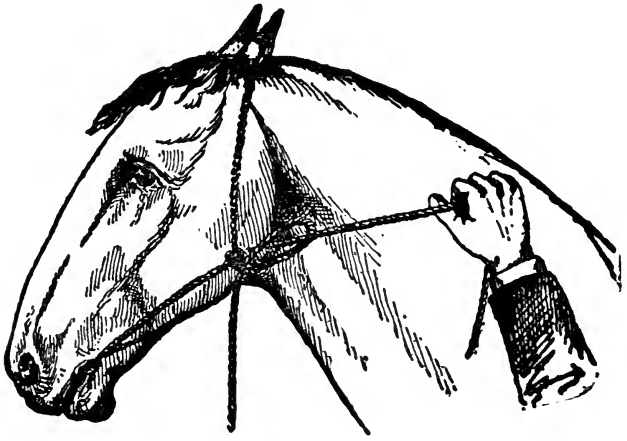


Several Forms of Using Bridle with Strap run down through Ring on Mouthpiece.

When used as in engraving above, is for training horses to be familiar with buffalo robes, umbrellas, drums, paper, steam and all other objects. In presenting an umbrella to your horse, take it in your left hand and the long strap in your right hand, letting the horse smell of the umbrella, then opening it and letting him look

into it, then holding it over his head, then raising it and lowering it, and alternately doing this until he is used to it. Then you can open and shut it without his making any move or seeming to notice it, and by being thorough in handling him with all objects he is afraid of, he will soon become familiar with them all.

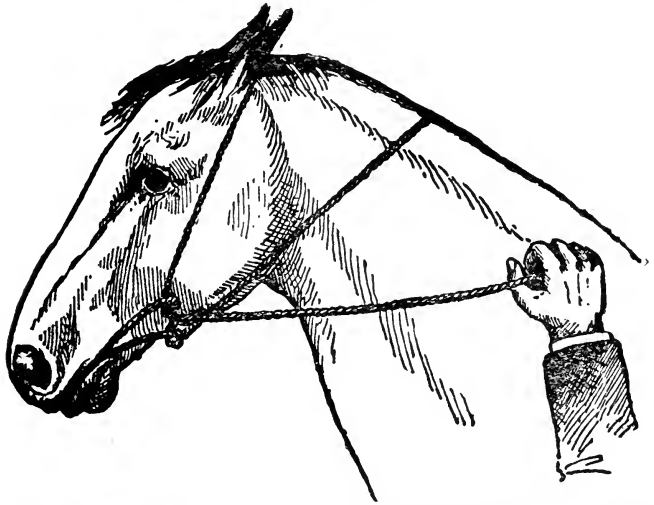
The owner of one of these books has the right to have manufactured one of these bridles for his own use, but not the right to sell or manufacture for sale, as they will be furnished to any person in want of one upon an order sent to my headquarters.



Prof. O. B. Gleason's Wonderful Eureka Bridle.

To make this bridle, take a small piece of rope ten feet long, tie it round the animal's neck in a slip knot, then bring the rope down through his mouth on the off side, then pass the rope back through the cord that you have tied around the horse's neck Now pull down upon the rope snugly, then pass rope over his head, close to his ears. then bring rope down on the off side of his face through his mouth, then pass the rope back and tie into the rope around his neck. This bridle is to be used to make a horse stand to be shod, harnessed, saddled, clipped, sore eyes treated, sore back treated; it is also used to make horses familiar with buffalo robes, umbrellas, paper, blankets

To accomplish this work and expedite matters, first let him smell of the object, then present them to him in any way you may choose, being careful not to inflict pain.

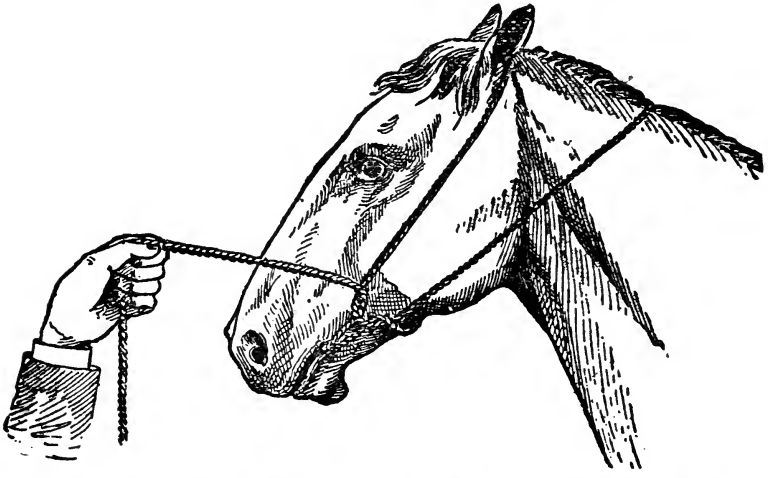


Prof. O. R. Gleason's Famous Bonaparte Bridle used by Him since 1878.

The above engraving shows the bridle in backward actions for teaching a horse to back and stop at word of command. This is a cord fifteen feet in length, with a stationary loop tied at one end just large enough to slip over the horse's lower jaw. Put it on the horse's lower jaw; bring it over the middle of the neck from the off side; pass downward through the loop on near side; bring up the lower corner of cheek-bone on near side; hold there with right thumb, pass the slack through mouth from near side; bring over neck just behind ears from off side; then through loop held by thumb. Don't fasten. Hold the long end in your right hand and take it back, and you then have a most powerful bridle which will effectually stop any horse, no matter how unruly or vicious, by merely giving it a sharp jerk, and saying "take care" when the horse tries to kick. To make a horse come to you at word, stand off eight feet with this cord in your hand, and say "come here," at the same time giving

the cord a strong pull, which you will find will draw the animal very quickly. Step to the other side of the horse and repeat again and again for about ten minutes. Every time he obeys, caress him, and in a very short time you will have a horse that will watch you as closely and follow you as well as your dog. This bridle can be also used for animals afraid of bicycles, etc., and liable to run away.

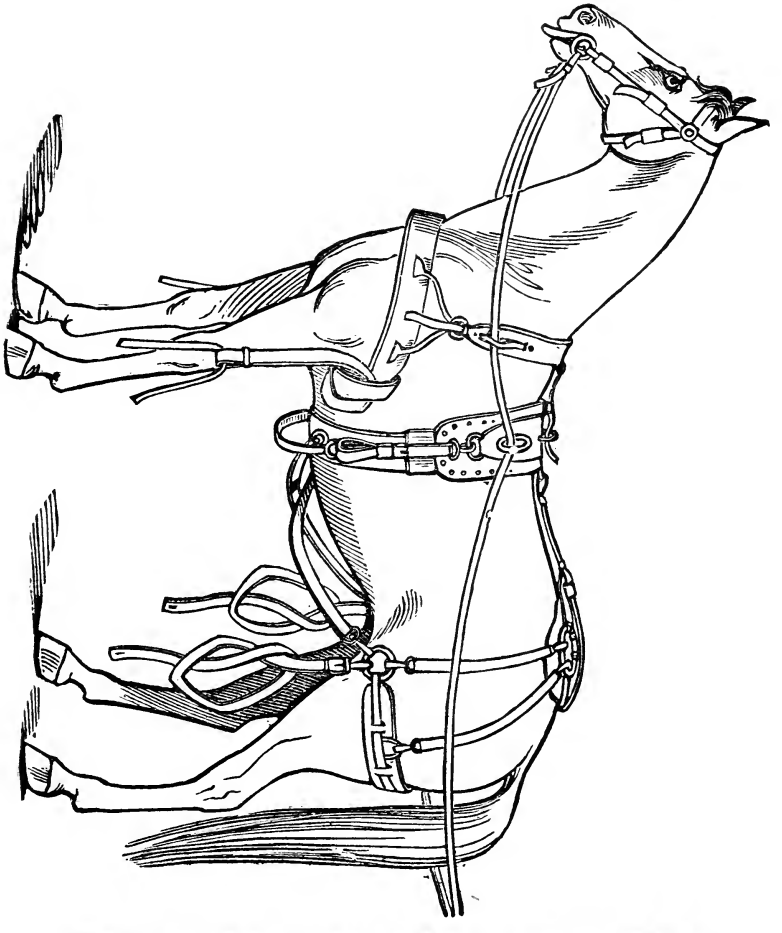
This bridle may also be used to break a horse afraid of umbrellas or buffalo robes, as follows: Place on the horse the bridle as seen in engraving. Present the umbrella or buffalo robe, allowing him to smell of it; then rub it across his nose and head; open it gently, at the same time allow him to smell of it several times; work gently till he becomes reconciled to it, and in a few lessons you will be able to use the umbrella in any place around him.



This Shows the Forward Action of Gleason's Bonaparte Bridle.

To be used as represented in above illustration when teaching a horse to come to you quickly. Take the cord in the left hand and your whip in the right hand, standing directly in front of the animal. Now pull the cord and strike him lightly with the whip around the hind legs, and say "come here," and when he obeys your command pat him gently on the neck, and repeat this as often as is

necessary, to make him thoroughly understand what you want. I want it distinctly understood, that I do not approve of the use of ropes in handling horses, and have only mentioned them in some of my descriptions of how to handle the for the convenience of the farmer, when they have no other opportunity of getting the straps which are always preferred. (See engraving of my new leather bridle.)



The "O. B. Gleason Break Harness." Patent applied for.

The Gleason Break Harness in Parts.

PATENT APPLIED FOR.

Breeching and Back Strap.

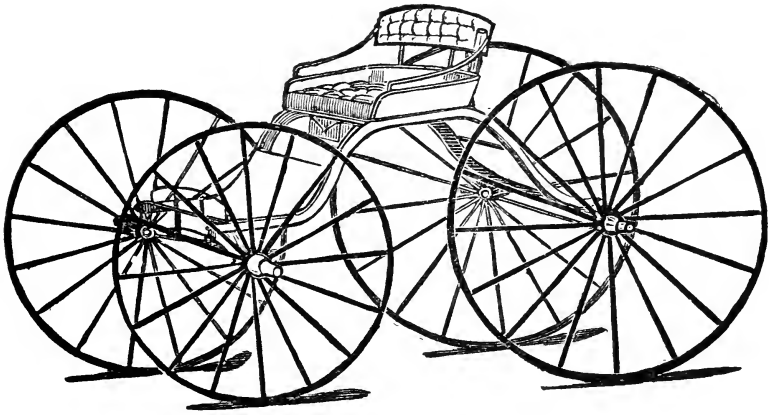
Surcingle and Back Pad.

Patent Bridle and Bit.

Belly and Hold-back Straps.

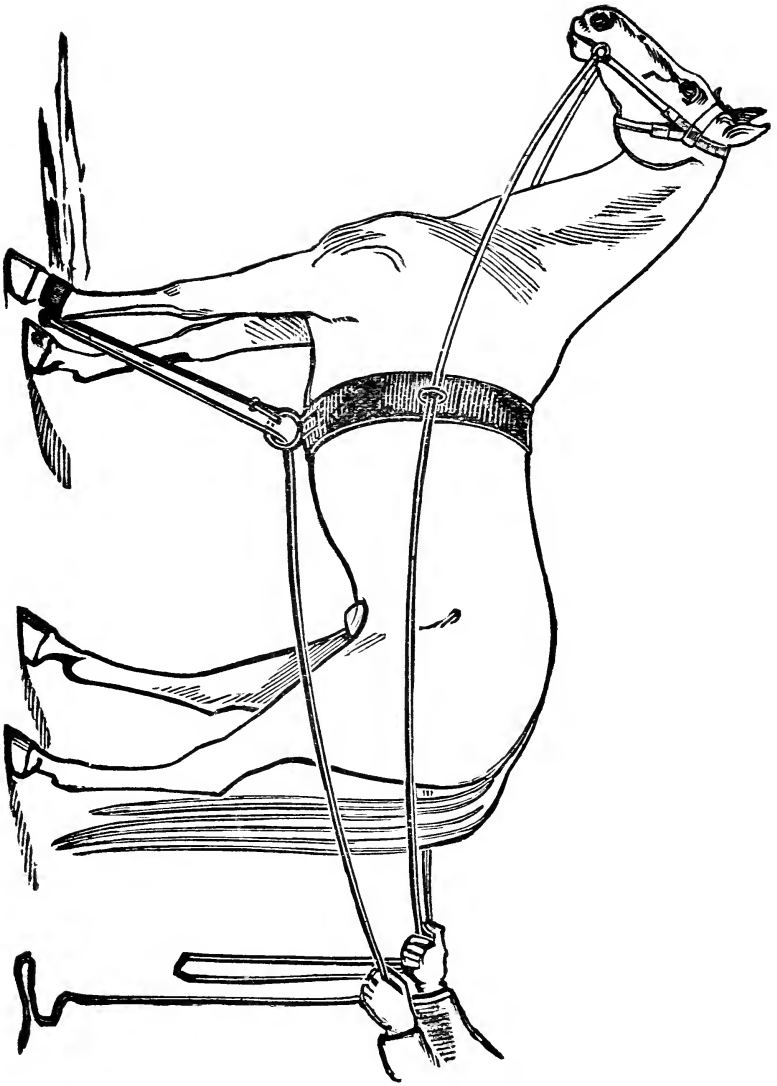
Breast Collar.

In describing the Break Harness, I will say it is so constructed that it can be put on in parts or taken off in parts. It can be used with back-strap and crupper, taken off also with breeching. The safety rope can also be applied when using this harness without interfering in the least with each other. The reader can see by the illustration on page 187 that it is put together with snaps. Any of my readers wanting such harness I will furnish them with one set complete for $25. Or to any person owning one of my books I will grant the right for them to get one made for his own use, but not to sell or cause to be sold.



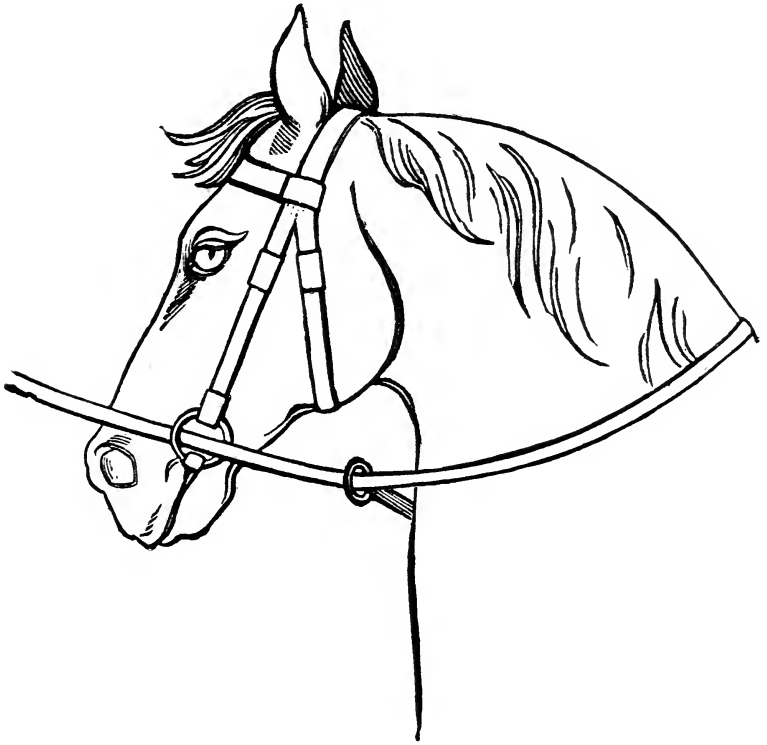
The above engraving is a fac simile of my famous "Break Wagon," by which the reader will readily see the fore wheels can turn right under the seat, there being no reach to obstruct their passage, permitting me to make very short turns, which is necessary, as my exhibitions are given upon theatrical stages often, and want of room in such cases caused me to originate the above wagon. It is so constructed that it can be taken apart and packed in trunks and thus transported over the country. It is very complete in all its points, and I have applied for a patent on it. I have handled over two thousand head of vicious horses with it, and it is still sound. It cost me $500 dollars to get it manufactured.

Any of my readers wanting such a wagon can obtain it through me.



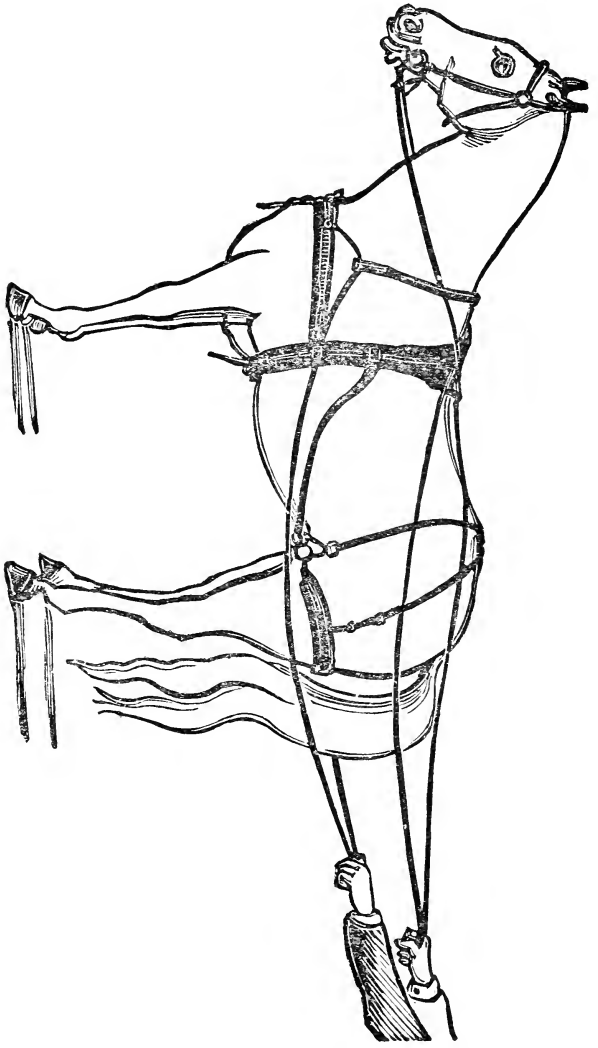
The above engraving illustrates the use of my single foot-strap, which, the reader will readily see, gives the driver a double purchase

on the horse's foot and is quickly explained. The end being snapped into large iron ring, which is sewed strongly to the surcingle under the horse's belly, passed through the ring attached to strap at the fetlock joint, and back through the ring in surcingle. Taking end of strap in left hand, you can break a horse of the following habits: from rearing in the air, bolting off sideways, teach him the word "whoa," etc., etc.



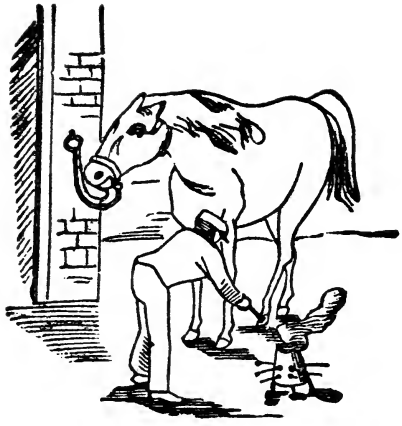
The above engraving illustrates the use of my guy line, used for starting balky horses and teaching colts to turn to the right or left. A man stands directly in front or to the right or left, as the case may be, and is controlled wholly by the driver, who sits in the wagon and whose commands he must listen to and strictly obey, so that the working of both men may be in unison, and by giving the horse

short lessons, not more than an hour's length per day for say two or three days, the horse will become thoroughly broke and subdued. It will also be found very useful in handling a horse who is stubborn and wants to go on one street while you desire to go another.



The engraving opposite illustrates the manner of educating a colt to pull in the harness by taking hold of the traces in the left hand and pulling gently back on them while he moves forward, getting him used to the pressure of the collar on his breast. After which he may be hitched to a two-wheeled vehicle, and taking care in giving the first lessons to select some level ground for the work, and make no false motions, never lie to him or deceive him. I condemn all bitting harness. It is certainly cruelty to animals to use them. It is a mistaken idea of any man to entertain to presume he can change the form or frame of a horse that was made by Dame Nature's own handiwork.

The above engraving illustrates a soldier shooting off his gun over the horse's back, and when giving the horse his first lesson in this part of his education, use the Gleason Bridle, and you always have your horse under control, for when he steps or moves while you are discharging your weapon, by simply tightening up on the rope or strap and commanding him to stand, he will become accustomed to it, so that he will soon pay no attention to the report. Give him two lessons a day for one week, and you will soon have an animal that you can discharge a cannon over his back and he will take no notice of it.

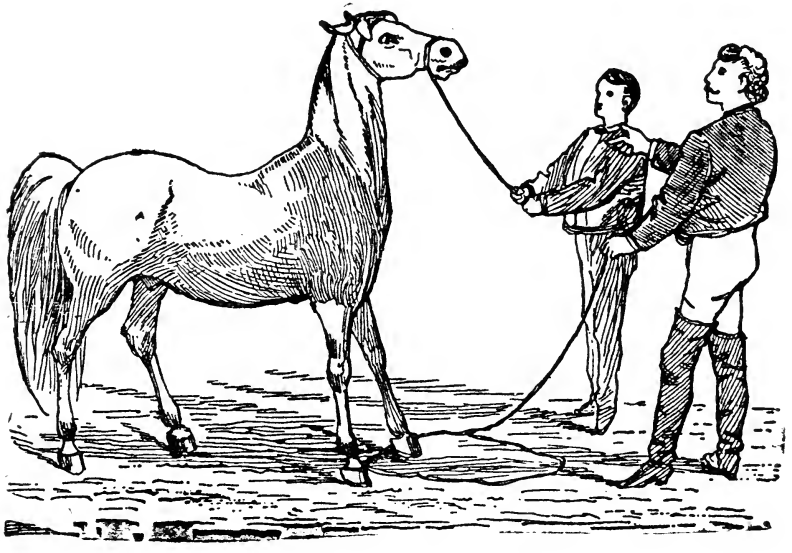


The above engraving illustrates the manner of branding a horse, showing where the brand should be placed, and which should be regulated by a law of the United States. Parties owning ranches where branding is necessary, should brand the horse on the left hind foot, and that brand should be registered. I recommend that the United States Government adopt this method in branding its horses.

Question. How would you handle a wild mustang?

Answer. In handling a wild mustang or any wild vicious horse, many times they are so dangerous that it is impossible to approach them with safety. I will lay down a rule to handle a wild and vicious mustang or western bronco. Take a half-inch rope fifty feet long, make a slip noose in one end of it, lay this on the ground, making a large loop about three and one-half feet across it, then lead the bronco into it, his front feet standing in the loop, as seen in the above engraving. The moment that he gets into the rope pull the rope, which will bring his two front limbs together; you pull to the left and the man that has hold of the bronco or mustang pull to the right; you will at once bring him to his back, as seen in the following engraving. Now you can take the mustang and put on my double safety strap and the driving bridle and handle him the same as I have laid down for handling any

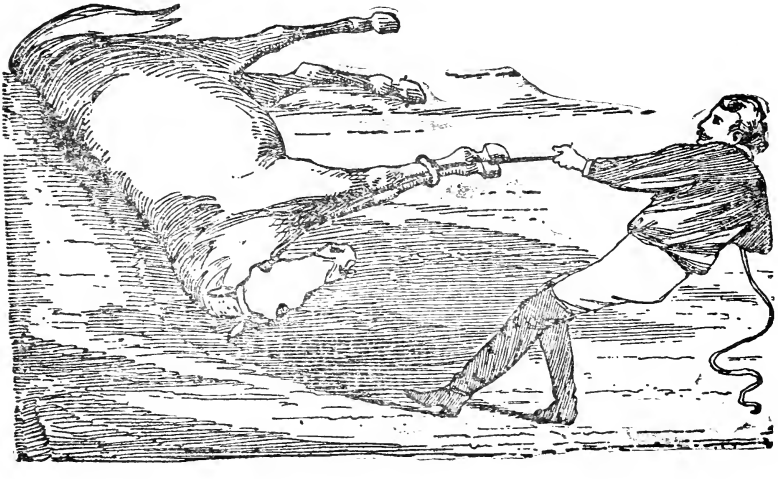
vicious animal, kickers or runaways. In working mustangs, let me say that you must work them slow and easy; their lessons should not be over thirty minutes' long. Repeat them twice a day and in one week the mustang is ready to drive. In working this animal always use a great deal of judgment and plenty of patience; never



show your temper; whatever they do is not because they are vicious, but because they are afraid that you are going to hurt them, and they are of a wild nature. They can be easily brought under control by kind and gentle treatment.

The following cut is to illustrate to the reader the position of man and horse, with the animal's fore feet in the lariat loop; you should now pull the rope quickly, and you should step to the right, while your assistant, who is holding the halter strap, steps to the left, and

the engraving below will show the horse as thrown. The man who holds the halter strap quickly passes down the horse's back to his hips and pulls the horse's head to his shoulder, thereby preventing



him from getting up. Now put on your driving bridle, surcingle and safety strap. Commence the training by letting him get up and handling him the same as a runaway, kicker or colt.

Will You Answer these Questions?

Can a cribbing horse be cured? No.

Can ringbones be cured? No.

Can spavins be cured? Not after they have become seated.

Can heaves be cured? No.

Can shoe boils be cured? No.

Can blindness be cured? No.

Can nervicular lameness be cured? Not after long standing.

Can splints be cured? No.

Do you approve of condition powder? Yes, if made fresh every spring from receipts given in my book. Condition powders that lie in stores for five or ten years are not very valuable. The strength of the medicine must be gone. I would advise all horse owners not to waste their money in buying such trash.

Can contracted feet be cured? No.

Can sprung knees be cured? No.

Can curb be cured? No.

Can bog spavin be cured? No.

Can a meaner be cured? No.

Can a corn from long standing be cured? No.

Question. How would you break a yoke of steers and a kicking cow?

Answer. First get your steer into a room or small yard, so that he can not run from you; then approach him slowly, and if he runs

do not be in a hurry, but wait until he gets to the end of the room or yard; then approach him slowly, as before. A steer may run from you in this way several times; but do not try and stop him with your whip, or force him to think that he will be at all injured, until he will stand and suffer you to approach him. As soon as this is accomplished gently tie a rope around his body near the shoulders, rather loosely. Then take another strap or rope, and gently fasten one end to the near fore foot; then pass the other end over the rope or surcingle, beneath the body. This rope should be sufficiently long to allow him to run to the end of the yard without your moving, at the same time you holding the rope sufficiently firm to compel him to move on three legs. Then approach him again quietly, and so continue until he will allow you to approach and handle him as you please. Now take a short hold of the strap with your left hand, your whip in the right, which pass over his shoulders, and quietly touch him on the off-side of the head, at the same time saying, "haw," and continue this until he moves his head a little toward you. They understand what you require of them while yoked together.

If your steers have learned to run away from you, which is a common result of the ordinary method of training, put on the rope and strap to the foot. If hitched to a wagon or sled, let your man hold the foot-strap, which runs back between the steers, and the moment they attempt to run away he pulls up their feet, while you whip them over the head, which will stop them immediately and in a short time break up the habit.

Kicking Cows.

It is natural for the cow to stand while being milked, consequently the heifer knows nothing about kicking until hurt or frightened into it. The lesson in regard to heifers is therefore perfectly plain. Be careful and not hurt or frighten them. If by accident you should, and they kick, do not punish them for it. Kindness and gentle handling is the only remedy. If your cow kicks, let your reasoning for the cause be based upon the principle that she never kicked until she was injured, and the remedy will at once suggest itself. No cow was ever broken of kicking by striking with the stool or other

weapon. This practice only puts the cow on her guard, and as you come near her with the stool she uses nature's defense and kicks. Handle her gently. If she walks off or kicks, pay no attention to it, using no loud words or blows. If her teats are sore, she is quite liable to do either; and you must have patience till they are healed. In our experience we have never found a confirmed kicker in a yard where kindness was a characteristic of the family who handled the dairy. On the contrary, we have found plenty of them where quarreling, loud words, and general bad temper prevailed.

Ladies' Equestrian Horsemanship.

The saddlery for the use of the ladies is similar in principle to that devoted to gentlemen's riding, with the exception that the bits and reins of the bridle are lighter and more ornamental and the saddle furnished with crutches for side riding; the reins are narrower than those used by the gentlemen, but otherwise the same. The saddle should be carefully fitted to the horse and there should always be a third crutch, the use of which will hereafter be explained. There is an extra leather girth, which keeps the flaps of the saddle in their places. The stirrup may be either like a man's with a lining of leather or velvet, or it may be a slipper, which is safer and also easier to the foot. The lady's whip is a light affair, but as her horse ought seldom to require punishment, it is carried more to threaten than to give punishment. A spur may be added for a lady's use; it is sometimes needful for the purpose of giving a stimulus at the right moment. If used, it is buckled on to the boot, and a small opening is made in the habit with a string attached to the inside, which is then tied around the ankle, and thus keep the spur always projecting beyond the folds of the habit. A nose martingale is generally added for ornament; but no horse which throws his head up is fit for ladies' use. The lady's horse ought to be a most perfect goer, instead of being, as it often is, a stupid brute, fit only for a dray.

Many men think that any horse gifted with a neat outline will carry a lady; but it is a great mistake; and if the ladies themselves had the choice of horses they would soon decide to the contrary. The only thing in their favor, in choosing a lady's horse,

is that the weight to be carried is generally light, and therefore a horse calculated to carry them is seldom fit to mount a man, because the weight of the male sex is generally so much above that of an equestrian lady. Few of this sex who ride are above one hundred and thirty pounds, and most are below that weight. But in point of soundness, action, mouth and temper, the lady's horse should be unimpeachable. A gentleman's horse may be good yet wholly unable to canter and so formed that he cannot be taught; he, therefore, is unsuited to a lady; but, on the other hand, every lady's horse should do all his paces well. Many ladies, it is true, never trot; but they should not be furnished with the excuse that they cannot because their horses will not. In size, the lady's horse should be about fifteen hands or from fourteen and a half to fifteen and a half; less than this allows the habit to trail in the dirt, and more, makes the horse too lofty and unwieldy for a lady's use. In breaking a lady's horse, if he is of good temper and fine mouth, little need be done to make him canter easily, and with the right leg foremost. This is necessary, because the other leg is uncomfortable to the rider from her side position on the saddle. The breaker, therefore, should adopt the means elsewhere described, and persevere until the horse is quite accustomed to the pace, and habitually starts off with the right leg. He should also bend him thoroughly, so as to make him canter well on his hind legs and not with the disturbed action which one so often sees. The curb must be used for this purpose, but without bearing too strongly upon it. The horse must be brought to his pace by fine handling rather than by force, and by occasional pressure, which he will yield to and play with if allowed, rather than by a dead pull. In this way, by taking advantage of every inch yielded, and yet not going too far, the head is gradually brought in and the hind legs as gradually are thrust forward, so as instinctively to steady the mouth and prevent the pressure which is feared. When this "sitting on the haunches" is accomplished, a horse cloth may be strapped on the near side of the saddle to accustom him to the flapping of the habit; but I have always found in an ordinary good tempered horse, that, if the paces and mouth were all perfect, the habit is sure to be borne.

It is a kind of excuse which gentlemen are too apt to make that their horses have never carried a lady; but if they carry a

gentleman quietly they will always carry a lady in the same style, though they may not perhaps be suitable to her seat or hand. The directions for holding the reins, and for their use, elsewhere given, apply equally well to ladies, the only difference being that the knee prevents the hand being lowered to the pommel of the saddle. This is one reason why the neck requires to be more bent for the gentleman's use, because, if it is straight, or at all ewe-necked, the hands being high raise the head into the air and make the horse more of a "star-gazer" than he otherwise would be. Many ladies hold the reins as in driving. It is in some respects better, because it allows the hand to be lower than the gentleman's mode, and the ends of the reins fall better over the habit. In mounting, the horse is held steadily, as for a gentleman's use, taking care to keep him well up to the place where the lady stands, from which he is very apt to slide away. The gentleman assistant then places his right hand on his right knee, or a little below it, and receives the lady's left foot. Previously to this she should have taken the rein in her right hand, which is placed on the middle crutch, then, with her left hand on the gentleman's shoulder and her foot in his hand, she makes a spring from the ground and immediately stiffens her left leg, using his hand, steadied by his knee, as a second foundation for a spring, and then she is easily lifted to her seat by the hand following, and finishing her spring with what little force is required. As she rises the hand still keeps hold of the crutch, which throws the body sideways on the saddle, and then she lifts her right knee over the middle crutch. After this she lifts herself up from the saddle, and the gentleman draws her habit from under her until smooth, he then places her left foot in the stirrup, including with it a fold of her habit, and she is firmly seated, and should take her reins and use them as directed for the gentleman. The great mistake which is constantly made in mounting is in the use of the lady's knee, which should be carefully straightened the moment it can be effected, for if kept bent it requires a great power to lift a lady into the saddle, whereas, with a good spring and a straight knee, she ought to weigh but a few pounds in the hand. The lady's seat is very commonly supposed to be a weak one, and to depend entirely upon balance; but this is the greatest possible mistake, and there can be no doubt, from what is seen in private as well as in

the circus, that it requires as great an effort of the horse to dislodge a good female rider as to produce the same effect upon a gentleman. Even with the old single crutch there was a good hold with the leg, but now that the third is added, the grip is really a firm one. When this is not used the crutch is laid hold of by the right leg and pinched between the calf of the leg and the thigh, so as to afford a firm and steady hold for the whole body, especially when aided by the stirrups. But this latter support merely preserves the balance, and is useful also in trotting. It does not at all give a firm, steady seat, though it adds to one already obtained by the knee. When two crutches are used, the leg is brought back so far as to grasp the crutch as before, but between the two knees the two crutches are firmly laid hold of, the upper one being under the right knee and the lower one above the left. The right knee hooked over the crutch keeps the body from slipping backwards, while the left keeps it from a forward motion, and thus the proper position is maintained. In all cases the right foot should be kept back and the point of the toe should scarcely be visible. These points should be carefully kept in view by all lady riders, and they should learn as soon as possible to steady themselves by the grasp of the crutches without reference to the stirrup-iron. In spite of her side seat, the body should be square to the front, with the elbow easily bent and preserved in its propper position by the same precaution. The whip is generally held in the right hand, with the lash pointing forward and towards the left, and by this position it may be used on any part of the horse's body by reaching over to the left and cutting before or behind the saddle, or, with great ease, on the right side. Its use may, therefore, in all cases be substituted for the pressure of the leg in the description of the modes of effecting the change of leg, turning to the left or right, or leading with either leg. With this substitution, and with the caution against all violent attempts at coercion, which are better carried out by the fine hand and delicate tact of the lady, all the feats which man can perform may well be imitated by her. In dismounting, the horse is brought to a dead stop, and his head held by an assistant. The lady then turns her knee back again from the position between the outside crutch, takes her foot out of the stirrup, and sits completely sideways. She then puts her left hand on the

gentleman's shoulder, who places his right arm around her waist and lightly assists her to the ground.

My Idea as to the Proper Methods to Pursue in Regulating and Managing a Government Farm.

The United States Government owns ten thousand horses and five thousand mules, the great majority of which are in the West on the frontier. This stock is renewed each year at a cost of thousands of dollars. They buy hundreds of horses every year, of these the greater part are "broncos," or Western bred horses. These horses cost the government an average of one hundred and eighteen dollars each, and are only saddle broken, which means that they have been ridden two or possibly three times each by a "bronco-buster." These same horses can be bought at an average price of forty-five dollars per head, wild.

What the government needs, and badly needs, is a government farm. This should be an immense ranch, conveniently located on the frontier, where there would be an extensive range, fertile soil and at a point where it would be protected from the extremes of heat and cold. It should be made to effect a three-fold purpose. 1. The breeding of horses adapted to the uses of the army. 2. The training and education of such horses. 3. To provide a hospital and recuperating station for government horses.

1. It is an unquestioned fact that the horses yearly bought for the army are poorly suited to its needs. They are scrub-bred, crosses mostly from heavy draft stallions upon the light Indian pony, and and while the product are good sized horses, they are lacking in many of the essential qualities of a war horse.

The government need three distinct styles of horses, and these it cannot obtain in any other way than by breeding them. We want a cavalry horse, fleet, nervy, powerful —the English hunter is probably the best type of horse for this purpose. We want artillery horses, horses that can hurry the heavy guns forward to battle. They should be short-limbed and close jointed, combined with strength and endurance—such horses as we try to buy for our fire engines. We want short-legged, powerful animals, for heavy hauling.

As private citizens we have learned to some trifling extent the necessity of breeding horses for special purposes. Trotters don't eminate from dung-hills, nor do running horses spring up unsought from the farm or plain. These horses are bred for the especial purpose of getting speed out of them, and men spend their life in the selection and breeding of horses for speed. The government, however, which pre-eminently needs the best of horses, horses that it cannot buy from horse breeders, as such horses are not raised here, is content with scrubs from the West and cart horses from the Middle States.

2. There is no training school for government horses. Private citizens who are best informed send their horses to professional horse trainers, that they may have animals able and willing to carry out their every wish. The government allows each soldier to train his own horse by the mere power of force of habit. These soldiers know little or nothing about a horse, and the proper way to handle him, in order to get the most out of him, and often valuable horses are spoiled, or at best but poorly broken to the service for which they are intended. Soldiers are trained and educated by men who have learned the proper method of educating a soldier, but horses upon whose trustworthiness and ability success largely depends, are allowed to go into engagements with the half training that a soldier can give them.

On this government farm there should be built a large training academy, in charge of a thorough horseman, and every horse that leaves the farm for active service should have been trained and educated by this horseman in all respects and as thoroughly as the soldier who is to ride him in battle.

Even if the government should not breed its own horses, the educating school is not only a very valuable adjunct to the army, but would prove a profitable investment. As I have already said, green broncos can be bought at almost one-third what the government pays for them "saddle broken," and such horses could be broken, trained and educated in this training academy at the same cost or but a trifle more, that they could be educated for war after being saddle-broken—this being an immense saving to the government every year.

3. When a horse is out of condition and is condemned by the in-

spector, the government sells it at public sale, and in this manner has sold thousands of really valuable animals that a short rest and proper treatment would have rendered as good for service as ever.

I advocate the establishment on a government farm of a horse hospital, where horses that are condemned can be sent, properly doctored and handled and allowed to recuperate their strength and health. The government has thrown away thousands and thousands of dollars by having no such infirmary in the past, and I feel assured that it will be simply a question of a short time till this scheme approves itself to Congress and the people.

I do not advocate that this government farm should be simply a great Western ranch, but a farm in every sense of the word. Here all the grain and food used on the place should be raised. It should be under the management of a horseman of known and recognized ability, and the hospital should be in charge of the best veterinarians that the country affords.

Not only would this farm enable Uncle Samuel to give to his soldiers the best of saddle horses, the best of artillery animals and to his teamsters strong powerful brutes, but it would be of incalculable benefit to the people at large. The farmers throughout the land have not yet learned the necessity of breeding their horses with care. "A colt's a colt" is still the saying, and to pay out a good price for a stallion fee, is considered in many sections as the height of folly. After a few years of successful operation the surplus from this farm could, if deemed advisable, be sold to the farmers at a reasonable profit to the government, but still at prices which would place the best of animals at the service of farmers, and so do a great deal towards raising the standard of our horses.

I believe that within a very short time Congress will look into the merits of this plan and adopt it, at least in its leading particulars.

Shipping Horses.

We need a law relating to the shipment of horses in cars. It is the shameful practice of nearly all horse shippers to crowd and jam into one car as many horses as they possibly can. Here they stand packed in like sardines in a box, compelled to ride for hundreds of

miles with no chance to rest themselves, crowding and pushing till they are all in a sweat and then allowed to cool off by the winds striking them through the unprotected sides of the car, and without food or water.

Railroad companies should be compelled by law to provide suitable cars for the shipment of horses. These cars should be built so as to protect the horses from the wind, yet thoroughly ventilated. Each horse should have room to rest himself and a place for water and feed.

One reason why most horses that are shipped are in bad condition for a long time, becoming acclimated, horsemen say, is that they catch cold and get themselves out of condition in the transit.

Let Congress look into this matter, order proper modes of shipping horses, and we will see a marked decrease in diseases among horses.

Special to the Farmer.

The necessity for improvement in farm stock to meet the exigencies of close times, of which considerable has been said of late, is one which does not end with cattle, sheep and swine, but includes the horse stock as well. Perhaps the improvement in these other descriptions of stock is of more importance because of their greater numbers, but a great deal can be gained by giving more attention to the character of the horse produced and maintained on the farm. Horses cannot be dispensed with on the farm, and no one makes the attempt, as the major part of the farm work is performed with their help, but the cost of their keep is a heavy burden. Many farmers do not realize this, because the food they consume is produced upon the farm; but inasmuch as if not consumed by them this food could be sold, or something saleable raised in its stead. The support of the horse stock is a very material item of farm expense. On a very large proportion of farms, if not upon the majority, the class of horses maintained is such that practically no return is secured from them beyond the labor they perform. This is a good deal, of course, but it is not enough, for with a better grade of foundation stock and more care in the selection of stallions, the production of horses can be made to contribute very handsomely to farm revenues without

going further in the direction of breeding than the usual force of farm teams will justify. There is a great demand in this country for good horses, and it is so diversified in its character and so wide in its extent, that practically it can never be overdone. The farmer need not be restricted to any one type of horse, and if he has any preferences in the matter they may safely be consulted, since every really good horse finds ready sale. But whatever the type selected the farmer should always breed for stoutness and stamina, with a fair measure of style and a movement and disposition suited to the purpose for which the animal is to be ultimately devoted. And the effort should constantly be made to produce animals for some particular purpose, and stallions patronized with the power to produce just the kind of a horse the farmer desires, avoiding the nondescripts at the "Cross Roads" who throw colts too slow to trot, too light to pull, and without style and character for anything else. We know of many farmers so negligent in this matter as to maintain teams of geldings for farm work. If a farmer wishes and can afford a driving team in which his personal pleasure is a fair compensation for their keep, he has as good a right to such horses as anybody; but as for horses maintained simply for farm purposes, we have often thought that a farmer had full as much use for a plug hat in the harvest field as for a team of geldings at the reaper.

It occurred to me that a few remarks to the farmers of America would be well received.

As regards a very large proportion of the farmers of this country, their farms are so conveniently located that they are enabled to haul to market the products of their farm in the shape of hay, grain, etc., which is done to a great extent. Having been giving daily exhibitions for fifteen years, I have noticed in my travels the great number of farms that were badly run down, the soil fast wearing out, buildings neglected, etc. On inquiry I found that many were heavily mortgaged, and the parties working the land barely making a living; also for years that nearly all the produce from these farms had been sold and consumed away from the farms, and scarcely anything returned to the land in shape of manure or fertilizers, which all land in this country must have in order to keep it productive.

There could of course be but one end to such management as this, the farm would year after year produce less, until it would even-

tually prove worthless, and its owner made poorer and poorer. In my opinion such farms can be brought back to their former productiveness by gradually returning to the soil what has been taken from it in the shape of manure and fertilizers. This will take time, and must of necessity be done slowly by the farmer, that is, year by year, as fast as they are able. I then revolved in my mind that that would be the most practical way of accomplishing this result. One way to do it is by a considerable expenditure of money in buying manures, etc., but as naturally would be the case the parties owning farms in such condition are generally not able to afford such an outlay. Another way, and it strikes me as the best way, is to raise and keep stock on the farms, so as to consume the hay, grain, etc., that they may raise, and thus have manure to put back on your land. This followed up, year by year, your land will begin to increase in productiveness, gradually more stock can be kept, and the farms will in a few years become restored to their former usefulness. Feed the products of your farm to your stock and then realize from sales of your stock. You will realize more in this way and with less labor to yourselves and families, and will be adding to the value of your farms, instead of depreciating them.

The next question that comes up will be what kind of stock will be the most profitable to raise, taking all things into consideration, to accomplish this result, which must be accomplished and cannot be commenced too soon, or the farmers of the country will (many of them) soon be in a condition that they cannot make a living off their farms.

My mind naturally reverts to the Blue Grass region of Kentucky, where the farms are used almost entirely for raising stock, but very little land being cultivated aside from the purpose of raising grain for their stock. Their lands are very rich and strong, their locality has become celebrated as a stock region, and every day their hotels are filled with buyers from different parts of the world, taking their stock away and leaving their money in return. Kentucky has become mainly celebrated for its fine horses, and they are in demand from all over the world. Many states can do as well as Kentucky, and in a few years can make a good start in raising horses, and it strikes me that it would be a move in the right direction, and should be followed up by every farmer. Good horses are always desirable

and saleable and at a good paying price. Many of our farmers do keep stock and they can tell you of its value in keeping up their farms. Large dairies are in existence, some producing butter, some hauling to the cheese factory and others sending their milk to the cities. The making of butter makes a great deal of work on the farm, viz.: care of cows, milking them, then the labor about the house making the butter, caring for cans, etc. Now, every farmer who will take the trouble to figure up the cost of this labor at its market value must know that there is no money in making butter at present prices. Then look at the state of the case, when milk is taken to the factory to be made into cheese. Figure up the cost of keeping a cow one year, your time in caring for cows, milking, hauling to factory, wear and tear of horses, wagons, etc., expense of cans, interest on investment, and tell me if a gross return of twenty-five dollars to thirty dollars per cow on an average will pay you for all this labor, etc. Now, as regards raising horses, which it seems to me will pay the farmer better than any other kind of stock raising, you are wonderfully favored in having access to the very best stallions that can be found anywhere in the broad land, stallions of the very best quality, the highest type and the very best blood lines, whether for the draft, the farm, the coach, road or track purposes.

A colt can be raised to three years of age at about the same price as a steer, the only extra expense in doing so being the service price of a stallion, and this is more than covered by the extra price they will sell for, even at common prices bringing three to five times the value of the steer. Where good mares are bred, the produce will sell for twice or three times the common price, which then makes it very profitable. The brood mare can be used carefully during pregnancy, so that she will earn her keeping. The foal at three years old can be broken to light work about the farm and will earn his living until sold. Many will be sold from weaning time up. If a steer can be raised in this country and sold at from $50 to $60, how much more profit is there in raising a foal that at the same age will bring $150 to $500, and when an extra good one is raised, the price will run up into the thousands. A farmer in my county with whom I am acquainted breeds one mare every year to one of the best stallions, and he assures me that this one mare is worth more money than the gross income of his whole farm of one hundred acres

Breed as good a mare as you can afford to own; breed to as good a stallion as you feel that you can afford to use, but always keep in view the general useful qualities of the horse for any work covering good size, fifteen and one-half to sixteen and one-half hands, good strong bone, heavily muscled, good disposition, good appearance, with soundness of parts and well-gaited and high breeding, and you will not go astray. Above all, avoid the use of cheap, low bred country stallions standing at a low fee and dear at that; also horses of unfashionable colors, and those that entail upon their stock white faces and three or four white feet. Such stock is not popular, and if buyers can be got to buy them it will be at a reduced price. A colt from a high bred horse can be raised as cheap as that from a low bred one, but when you come to sell him, the one by the high bred horse will sell for two or three times as much. Buyers appreciate the value of good blood and will pay more for it, because their experience has taught them that it is worth more and will sell more rapidly. Feed your colts liberally and they will well repay you for your liberality by making better horses at three and four years of age than they would if half fed at six years old.

I have presented these thoughts to you as I hastily jotted them down, but I have probably said enough to call your attention to the matter so that you can fully consider it.

What Errors in Feeding will Do, and How to Prevent Diseases of the Digestive Organs.

With very rare exceptions diseases of the digestive organs are results of errors in feeding, and all observations point to the conclusion that in the horse the intestines are more liable to suffer from disease than the stomach. The stomach of a horse is a simple organ, small in comparison to the size of the animal and in contrast with the volume of the intestines. It is but slightly called into action during the digestive process, and, provided the food be properly masticated and incorporated with the salivary secretions, it is arrested for a short time only in the stomach, but is passed onward into the intestinal canal, where the process of digestion is completed. On this account the intestines are more liable to disease. It is also a remark-

able fact that easily digested food, if given over abundantly, is apt to derange the small intestines; whereas food containing much woody fibre, such as over-ripe hay, coarse straw, etc., accumulates in the large intestines and there causes derangement, inflammation and even paralysis of the intestinal muscular tissue. It is also a fact worthy of notice, that if food be given artificially prepared, by boiling or steaming, it is retained in the stomach itself, and if given in too large quantities causes distension, inflammation, paralysis and even rupture. This is accounted for by the circumstance that food imperfectly prepared for intestinal digestion is retained or imprisoned by the action of the pyloric structures, and thus distends the stomach by its bulk or by gases evolved by the process of fermentation, which is apt to ensue.

The food of the horse contains an abundant quantity of starchy materials, and the process by which these are rendered soluble commences in the mouth, not only by their admixture with the salivary secretions, but by a chemical change through which the non-soluble starch is converted into dextrine and grape sugar, and made fit for the action of the intestinal, bilary and gastric secretions, and for absorption by the vessels of the gastric and intestinal walls. For the purpose of performing this process the horse is provided with twenty-four millstones, in the form of molar teeth, which have the power of crushing and triturating the hardest food, and of an extensive system of salivary organs which secrete very actively during the process of mastication, a fluid which effectively blends with and chemically changes the food thus triturated. On this account it is found that when horses are sufficiently but not overly fed with dry food of a proper quantity, the stomach rarely suffers from disease. An error in the diet, however, or a sudden change from one kind of food to another, not only deranges the stomach, but the intestinal canal as well.

From various causes, such as improper food, the process of dentition, diseases of the teeth causing imperfect mastication, ravenous feeding, the presence of other diseases, debility of the stomach itself, resulting from some constitutional predisposition, or from food given at uncertain and rare intervals, a condition of indigestion is induced in the horse. In young animals the same is induced by draughts of cold milk, removal from the dam at too early an age, or

what is commonly the case in some places, compelling the dam to work shortly after the birth of the offspring, and allowing it to suckle at rare intervals and when the dam is heated. In the horse the symptoms of indigestion are loss of appetite, or depravity and capriciousness of it, manifested by the horse eating at irregular intervals, or having a desire to eat filth, with sourness of the mouth and usually increased thirst. The animal soon becomes hide-bound, has a dry, scurfy skin; there is irregularity of the bowels and frequent escape of flatus by the anus. If caused by imperfectly masticated food, such as whole oats or coarse hay, these may be found in the fæces. In addition to the above diagnostic symptoms, there may be a dry cough, or irregularity of the pulse, which may be slower or faster than natural; colicky pains may also be present in some cases, occurring more particularly in an hour or two after the animal has partaken of its food, whilst in others fits of giddiness, and even paralysis, occurs; the latter condition being not seldom seen in cattle, and very often in horses.

In the young animal the above symptoms are more commonly associated with diarrhœa than in the older ones, in which constipation is generally present. The fæces often resemble the color of the food; for example, if the horse is fed on dark colored hay or clover, the fæces will be dark colored also; if, on the contrary, it is fed on oats, the fæces will be light in color; and in the young animal, when fed on milk, it will often resemble it both in color and consistence, mixed, however, with large masses of curdled milk, and often very fœtid. It has often been noticed that when indigestion is induced by clover the urine is very dark in color, and deposits a thick, almost brick-colored sediment. This condition of the urine, however, need cause no apprehension, as it is often seen in the clover-fed animal without any disease being present. Indigestion is a fertile source of deposits in the urine, which results from imperfect nutrition of the tissues, or a chemical change in the constituents of the blood-plasma, due to the products being imperfectly prepared or containing some material unfit for healthy nutrition.

In the treatment of indigestion, the cause ought to be carefully inquired into and removed. If due to the process of dentition, the presence of unshed crowns of the temporary teeth irritating and wounding the mouth, or to any irregularity of the dental apparatus,

these must be attended to according to the directions laid down under their several heads. In all instances where such causes are not in operation, even when the cause cannot be traced to the food, it will be necessary to make some alteration in the diet and to examine the various alimentary matters in order to detect the offending one if possible. If the diarrhœa is not excessive and the animal thereby much debilitated, it would be advisable to give a mild aperient or a moderate cathartic. To the young animal a dose of castor oil or linseed oil, to the older a moderate dose of aloes, combined with a vegetable bitter, ginger or gentian. In foals pepsin can be administered, as in all probability the indigestion is due to imperfect secretion of the gastric glands; even in the older animal this is often presumably the case, and more especially when the disorder occurs without apparent cause; the same remedy will prove beneficial. The diet of the animal is also to be carefully conducted, and that pure air, moderate exercise and good grooming are essential to proper digestion. Occurring in the winter if the horse is thickly covered with hair, clipping will have a beneficial result, restoring the digestion and appetite, which may have been long impaired, notwithstanding remedies, in the course of a few hours.

Distension of the stomach may arise from repletion with solid food, or from the evolution of gases arising from solids or liquids contained within it undergoing the process of fermentation, or disengaged from the gastric walls when the stomach is empty, as occurring in conditions of great prostration. The cause of impaction of the stomach results from the indigestion of food too abundant in quantity, or greedily swallowed and imperfectly masticated. In those parts of the country where the cooking of food for horses is a common custom, it is found that deaths from diseases and lesion of the digestive apparatus are very common. From the reasons that it is necessary for the food to undergo, not only the process of trituration by the teeth, but that it requires to be chemically altered by combination with the saliva, it will be understood that food prepared in any other way, as cooking by boiling and steaming, is unfitted to be acted upon by the stomach, and is consequently retained within it, the animal meanwhile continuing to eat until its walls become distended, paralyzed or even ruptured. Some kinds of food, nutritious in themselves and theoretically calculated to be proper for the

horse, are found practically to be highly dangerous. Wheat, for instance, which is highly nutritious, is considered to be improper food, deranging the stomach, causing purgation, laminitis and death. Barley has a similar effect. When it becomes compulsory to cook the food, it should be given with the greatest caution and in small quantities. Bran in mash or otherwise, musty hay, or too ripe before being cut, barley and green foods, not only induces engorgement, but also undergo fermentation in the stomach, and thus bring on tympanitis.

How Should a Horse be Fed During a Hard March or a Long Drive.

How many times have I seen farmers and horse owners before starting on a visit or a long journey give their horse a big breakfast, saying, "he's got a hard days work before him." About ten o'clock, when he has gone 25 or 30 miles from home, Mr. Horse lies on the side of the road with a good case of acute colic. Cause "good breakfast." Now, I will give you my idea of the way a horse should be fed in order for him to do the work and prevent sickness. Give him a good big supper. This allows his digestive organs all night to perform their functions, and your horse has laid up a reserve for a journey. In the morning give a light breakfast of grain, say four quarts of oats, no hay. Same at noon. Always water your horse after, never before eating. Never drive up to a trough when on the road and let him drink. Use a pail that you may know how much he is drinking. For myself I do not approve of watering a horse more than four times a day when on a journey, early in the morning, again at ten o'clock, again at four and again at night when putting him up for his rest.

When you desire to stop but a short time for dinner, you need not wait until your horse is cool before you feed him. Feed him his grain at once, and as soon as he has eaten he is ready for business. A great many horsemen will tell you that there is danger in feeding a horse when very warm. But it is not so. Understand me correctly, I refer only to instances where you are going to put your horse to work immediately after he has eaten his dinner. When

warm, his stomach is expanded, and your keeping him warm, it remains in that state. On the other hand, if you allow him to stand, the stomach contracts, and the gas from the grain brings on colic.

Taking Care of Horses when Heated.

It is the habit of a great many persons when their horses become heated to cover them with a great heavy blanket. This is wrong. Do not cover your horse for about five minutes, letting him steam. Then put on a light blanket, allow him to stand with this blanket on for half an hour, then remove the light blanket and put on your heavy one. This gives the animal a warm, dry covering, after you have removed the light blanket which is wet from the steam of the horse. Follow these directions and it will prevent your horse from catching cold. I approve of giving the horse a thorough rubbing first, if convenient.

Care of Horses in the Spring of the Year.

Great care should be given the animals during the months of April and May, to prepare them for the warm weather. As soon as the grass starts your horse should be grazed thirty to forty minutes each day, and this as early in the morning as possible. Green grass will physic your horse, purify his blood, and get the grain that he has been eating through the winter months out of his system. At the same time that you are grazing the horse, feed bran mashes and stop feeding grain for a week or ten days, until you get his system in a thoroughly good condition. I would also advise that driving horses with feet that are inclined to contract be walked in the dew every morning through the summer months. This is one of the greatest treatments in the world for softening and expanding the horse's feet. It is much better than all the hoof ointment there is on the market, and it is a great deal cheaper.

In cities where it is not feasible to graze your horse, give him a bucket of green grass cut from the lawn.

Horses.

The number of horses has risen from 4,336,719 in 1850 to 14,976,017 in 1890. In 1850 Ohio headed the list with 463,397 ; in 1860, Ohio again, with 623,346 ; in 1870 Illinois had gone to the front with 853,738, and at the front she remained in 1880 with 1,023,082, and in 1890 with 1,335,289 horses. It is a curious commentary on the old fear that railways would destroy the market for horses, that their number has most increased where railways have been most developed.

In 1850 there were returned, horses, 4,336,719 ; mules and asses, 559,331 ; together, 4,896,050, to a population of 23,191,876, or an animal of equine parentage to each 4¾ inhabitants. In 1890, horses, 14,976,017 ; mules and asses, 2,296,045 ; together, 27,272,062, to a population of 62,317,194, or an animal to each 2¼ inhabitants, notwithstanding that the miles of railroad had enormously increased in the 40 years.

It would be interesting and instructive to learn the average value of each animal in 1850 and in 1890. Undoubtedly the common horse of to-day is a great deal better animal and will sell for much more money than his predecessor a human generation ago. Probably that increase is one-third to one-half. The deep and widespread interest in running and trotting for their own sake, as well as the efforts purposely made to improve horse stock, have borne abundant and gratifying fruits.

Taken by districts, the figures in the foregoing table are quite interesting and instructive. The first nine States form the North Atlantic division; in it in the last decade (from 1880 to 1890) has been an increase of 11.83 per cent. in horses and 12.73 per cent. in mules. The next nine States are the South Atlantic division, and in the past decade increased in the number of horses 9.90 per cent., and in mules 20.31 per cent. The next twelve States constitute the North Central division, and increased in horses 51.31 per cent., and in mules 21.80 per cent. from 1880 to 1890. The South Central district is made up of the next eight States. The percentage of increase for the same time was 46.50 per cent. horses and 30.72 per cent. mules. The last eleven States make up the Western division, and between 1880 and 1890 there was an increase of 108.79 per cent. in the number of horses, and 65.55 per cent. in mules. Illinois has the largest number of horses at this time, and Missouri the largest number of mules.

NUMBER OF HORSES AND MULES IN THE UNITED STATES.

STATES AND TERRITORIES.	1890.		1880.		1870.		1860.	
	HORSES.	MULES.	HORSES.	MULES.	HORSES.	MULES.	HORSES.	MULES.
Maine	109,156	278	87,848	298	71,514	336	60,637	104
New Hampshire	52,458	123	46,773	87	39,095	37	41,101	10
Vermont	89,969	330	75,215	283	65,015	252	69,071	43
Massachusetts	63,638	196	59,629	243	41,039	103	47,786	108
Rhode Island	9,864	51	9,661	46	7,770	43	7,121	10
Connecticut	43,764	279	44,940	539	34,935	190	33,276	82
New York	664,430	4,636	610,358	5,072	536,861	4,407	503,725	1,553
New Jersey	86,925	8,227	86,940	9,267	79,708	8,853	79,770	6,362
Pennsylvania	618,660	29,563	533,587	22,944	460,339	18,009	437,654	8,832
Delaware	25,656	4,819	21,933	3,931	16,770	3,584	16,562	2,294
Maryland	130,395	14,761	117,796	12,561	89,696	9,830	93,406	9,829
District of Columbia	826	41	1,027	68	533	124	641	122
Virginia	242,334	37,532	218,838	33,598	152,899	26,903	287,579	41,015
West Virginia	154,721	7,390	126,143	6,226	90,479	2,139	.....	.....
North Carolina	131,451	100,011	133,686	81,871	102,763	50,684	150,661	51,388
South Carolina	59,888	86,106	60,660	67,005	44,105	41,327	81,125	56,456
Georgia	103,501	157,377	98,520	132,078	81,777	87,426	130,771	101,069
Florida	31,807	9,755	22,636	9,606	11,902	8,835	13,446	10,910
Ohio	880,677	18,858	736,478	19,481	609,722	16,065	625,346	7,194
Indiana	720,035	59,744	581,444	51,780	497,883	43,259	520,667	28,893
Illinois	1,335,289	107,875	123,082	123,278	853,738	85,075	563,736	38,539
Michigan	516,117	3,822	378,788	5,083	228,302	2,335	136,117	330
Wisconsin	460,740	5,452	352,428	7,136	252,019	4,195	116,180	1,030

Minnesota	461,509	9,511	257,282	9,019	93,011	2,350	17,065	377
Iowa	1,312,079	41,648	792,322	44,424	433,642	25,485	175,088	5,734
Missouri	946,191	251,543	667,776	192,027	493,969	111,502	361,874	80,941
North Dakota	130,931	8,709	41,670	2,703	2,514	225	84	19
South Dakota	250,305	7,671						
Nebraska	626,789	46,512	204,864	19,999	30,511	2,632	4,449	469
Kansas	930,305	95,937	430,907	64,869	117,786	11,786	20,344	1,496
Kentucky	401,356	151,649	372,648	116,153	317,034	99,230	355,704	117,634
Tennessee	311,842	203,639	266,119	173,498	247,254	102,983	290,882	126,345
Alabama	121,207	134,800	113,950	121,081	80,770	76,675	127,063	111,687
Mississippi	155,050	155,755	112,309	129,778	90,221	85,886	115,571	110,723
Louisiana	126,777	88,028	104,428	76,674	59,738	61,338	78,703	91,762
Texas	1,025,876	227,432	805,606	132,447	427,504	61,322	325,698	63,334
Oklahoma	25,554	4,923	.....	.....	.....	.....	.....	.....
Arkansas	186,867	26,488	146,333	87,802	92,013	36,202	140,198	57,358
Montana	144,826	965	35,114	858	5,289	475	.....	.....
Wyoming	87,403	1,242	11,975	671	584	283	.....	.....
Colorado	155,170	6,139	42,257	2,581	6,446	1,173	.....	.....
New Mexico	38,130	9,367	14,547	9,603	5,033	6,141	10,066	11,291
Arizona	15,780	946	6,798	891	335	401	.....	.....
Utah	64,801	1,554	38,131	2,898	11,068	2,879	4,565	851
Nevada	56,788	1,723	32,087	1,058	7,520	990	541	134
Idaho	84,135	1,012	24,300	610	2,151	371	.....	.....
Washington	153,770	1,345	45,848	626	11,138	943	4,772	159
Oregon	224,962	4,946	124,107	2,804	51,702	2,581	36,772	980
California	405,311	54,534	237,710	28,343	192,773	17,533	160,610	3,681
Total United States	14,976,017	2,296,045	10,357,488	1,812,808	7,145,370	1,125,415	6,249,174	1,151,149

Oscar R. Gleason's Original Methods for Detecting Unsoundness in the Horse.

The result of an experience of over fifteen years duration, in which time he has handled over "twenty thousand horses," which, however, may seem incredible to the reader, but the truth of which he can clearly substantiate, and the fact demonstrated on referring to his Journals, giving the owners' names and addresses, the kind of horse and the character of their habits, and the date they were handled by him.

In meeting with so many unsound horses in my journeyings about the United States, I am awakened to the fact that I might enlighten many of my readers by my original methods of detecting all of the unsound points about the horse. In doing this I do not intend to make use of any scientific terms that belong to the veterinary college, but instead of which it will be my aim to use plain matter-of-fact language, and that which would generally occur in any and every community where people reside who admire and cultivate to improve that noble animal so highly estimated by man. In doing this it is certainly not my object to induce the reader to entertain the idea that I belong to the veterinary school. If, perchance, the reader should entertain the idea let me here disabuse his mind with regard to it. The veterinary college is an institution of a very high order, and one worthy of the patronage of the rising generation, and should receive the encouragement of the whole world.

How to Examine the Horse.

In the first place use your own judgment and do not listen to what your neighbors say. If you are in a locality where you can get a good veterinary to examine him, I would advise you to do so, unless you consider yourself fully qualified; if such is the case with the reader, I can only say go ahead.

Have the horse led out of the stable, as all horses should be examined in the open air. The first of all look to his age. For ascertaining the correct age of the horse you will find it laid down elsewhere in this book. Open the horse's mouth, look at his grinders and see that they are in a proper condition. Next examine his eyes, then his ears, running your fingers carefully in them to see that there is no unnatural growth of warts or bunches such as wens, etc., which could not otherwise be discerned, as thereby many horses have been rendered deaf from such causes. Take your right hand, place it on the top of his head and feel for the effects of Polevil, or any sores of any nature that may be there. Then run your hand back to his withers and examine for any marks of the surgeon's knife or fistula, also while examining the mouth, look carefully for any marks or scars that might be the result of the use of the knife. Now run your hand on the horse's back to the region of his kidneys to ascertain if there is any weakness there. Now stand directly in front of the animal, and see if he has a full chest, and that his shoulders are both alike. Now look at his fore feet and see if they are both the same size.

Now pick up his feet and see that the frog is of a yielding and tender character. See that he does not have "Thrush," which you can detect from the offensive odor arising therefrom. Now look on the inside of his front leg and see whether he has splints or any unnatural enlargements of any character or nature. Now, examine the hind legs for bone spavin or any enlargement of the hock joint, such as blood spavins, bog spavin, thorough pin, curve, &c., &c. Examine the leaders and tendons. Now have the horse trotted at a slow and also a quick pace; then take a side view of the same action. Then have him backed quickly and led up quickly, keeping your eyes on his hind legs, looking for string halt. Now have him turned round short, looking for any weakness about his front legs, in which he will exhibit by dragging one of his limbs. Also examine his throat and nostrils, looking for any disease that might be located there.

The ears of a horse should be small; broad between his ears, broad between his eyes, with a large and full hazel eye, perfectly level and straight from the forehead down to the nostril, with a large, full nostril and thin. Size of the animal varies according to what you want to use him for. The bones of the horse's leg should be

flat and with very little flesh upon them, showing the cords and leaders perfectly. The foot should be of a flat nature. I have found those to be of a more lasting kind. The foot that contracts easiest is of a high wall and closed heel. (See engraving in this book for perfect horse.)

The reader may be assisted in reviewing the following list of common terms used in expressing the unsound points about the horse:

Contraction of the foot.....Unsound.
Thrush in the foot.....Unsound until cured.
Toe Crack.....Unsound.
Quarter Crack.....Unsound.
Corn.....Unsound.
Flat foot, when sole has dropped.....Unsound.
Pomace sole, or any inflammation of the laminae.....Unsound.

Callousness upon the knee, caused by a horse falling down, or otherwise, is an evidence of unsoundness.

If the knee is swollen, but no wen or protuberance of a callous nature, ound.

As to the eye, any disease, even from the slightest cold or inflammation, until it be completely cured or has resulted in total blindness, stamp the animal as unsound.

In short, a horse with either eye not actually perfect is unsound.

Ringbone.....Unsound.
Canker in the foot.....Unsound.

Windgalls I consider not in the full sense of the term unsound, but rather as a blemish brought on by overwork or strain.

Curb.....Unsound.
Spavins of all natures and kinds.....Unsound.
Cappid Hocks.....Unsound.
Rheumatism.....Unsound.
Thorough Pins.....Unsound.
Blood Spavin.....Unsound.
Bog Spavin.....Unsound.
String halt.....Unsound.
Low hip or any protuberance of the hip.....Unsound.
Gease Heels, until cured.....Unsound.
Cracked Heels.....Unsound.
Enlargement of the hind leg, or what is technically termed "Elephantine".....Unsound.

Weak back.....Unsound.
Knuckling of the pastern joint, or sprung knees.....Unsound.
Stumbling, which is generally caused by the weakness of the tendons.....Unsound.
All enlargements of the sinews or tendons.....Unsound.
Heaves, or broken wind .....Unsound.
Cough, until cured.....Unsound.
Crib biting.....Unsound.
Wind sucking.....Unsound.

Heaving, a nervous affection not necessarily injurious but more of a habit.

Surfeit or Mange.....Unsound until cured.
Glanders.....Unsound.
Strangles.....Unsound.
Colds and distempers, until cured .....Unsound.
Enlarged joints.....Unsound.
Soft enlargements on any part of the limb.....Unsound.
Sore shoulders or galled backs .....Unsound until cured.

Horses where the shoulder has shrunk or perished, it is caused by inflammation of the tendons, originating in the foot, and they are unsound.

Stiff hocks.....Unsound.
Wounds of every nature, until cured .....Unsound.

Scars of all kinds, if properly healed, not leaving a bone fracture, are sound.

Horses who cut their quarters when spading, or when lying down in stall have caused the shoe boil, are unsound until cured.

Roman backed horses are the most durable animals we have.

Saddle backed, hollow backed and low backed horses may be considered sound, but are nevertheless an eyesore to the owner.

Wall eyed or moon eyed horses, if not sightless, I consider sound.

All humors arising from impurities of the blood or otherwise I consider an evidence of unsoundness until cured.

Pigeon toed horses, or horses toeing in, unsound, being an unnatural development, liable to cork themselves or interfere.

LAMPAS.—This is a fullness of the roof of the mouth and is most frequently found among young horses.

Treatment—Cut the first bar in roof of the mouth, squeezing out the blood, then add a little salt. Never burn them as in our grandfather's days. This is not considered by me as an evidence of unsoundness, as the remedy is simple and effectual.

Firing horses for any enlargement of the limb or any other cause I consider a brutal treatment, and when left so treated, I consider him unsound.

Wolf teeth are two small teeth and found on either side of the upper jaw next to the grinders. If they set close to the grinder there is danger of their effecting the eye. They should never be knocked out as is practiced by many, but should be removed by a pair of forceps. They are peculiar to young horses or colts; after they have been abstracted, I consider the horse sound. By a careful pernsal of what I have said upon the most natural causes that render the horse unsound, and a few suggestions as to the treatment of them, if I have rendered the reader any assistance and saved the noble horse, man's true reliance, any torturous treatment, I am satisfied.

THE TEETH.

A foal at birth has three molars, or grinding teeth, just through the gums, upon both sides of the upper and of the lower jaws. It generally has no incisor or front teeth; but the gums are inflamed and evidently upon the eve of bursting. The molars or grinders are, as yet, unflattened or have not been rendered smooth by attrition. The lower jaw, when the inferior margin is left, appears to be very thick, blunt and round.

A fortnight has rarely elapsed before the membrane ruptures and two pairs of front, very white teeth, begin to appear in the mouth. At first these new members look disproportionately large to their tiny abiding place, and when contrasted with the reddened gums at their base, they have that pretty pearly aspect which is the common characteristic of the milk teeth in most animals.

In another month, when the foal is six weeks old, more teeth appear. Much of the swelling at first present has softened down. The membrane, as time progresses, will lose much of its scarlet hue. In the period which has elapsed since the

former teeth were looked at, the sense of disproportionate size has gone. The two front teeth are now fully up, and these are almost of suitable proportions. When the two pairs of lacteral incisors first make their appearance, it is in such a shape as can imply no assurance of their future form. They resemble the corner nippers and do not suggest the smallest likeness to the lateral incisors, which they will ultimately become.

There is now a long pause before more teeth appear. The little one lives chiefly upon suction and runs by its mother's side. Upon the completion of the first month, seldom earlier, it may be observed to lower its head and nip the young grass. From the third month, however, the habit grows, until by the sixth month, the grinders will be worn quite flat and have been reduced to the state suited to their function.

The corner incisiors come into the mouth about the ninth month, the four pair of nippers which have already been traced being at this time fully developed. The corner incisors, which are depicted as through the gums, do not yet meet, though these organs point toward each other, neither has the membrane of the mouth at this time entirely lost the deepened hue of infancy.

From this date, however, the gums gradually become pale, till by the end of the first year, the membrane has nearly assumed its normal complexion during the earlier period of existence. All the incisors are, by the first birthday, well up. The grinding teeth which are in the mouth when the foal first sees the light, are of a temporary character. The jaw, therefore, has to hold and to mature the long permanent grinders which, within the substance of the bone, are growing beneath the temporary molars. To contain and to develop the large uncut teeth, before appearing above the gums, causes the small jaw of a diminutive foal to be disproportionately thick, especially as compared with the same structure in an adult horse.

At one year old the first permanent tooth appears. This is the fourth molar, or the most backward grinder in the engraving. The jawbone at one year old has become longer and wider. This increase of size was necessary to cover the increasing size of the new molar and to afford room for the partial development of two other grinders, which will appear behind what is now the last tooth. Often little nœules of bone, without fangs, merely attached to the gums, appear in front of each row of grinders.

These are vulgarly denominated "wolves' teeth." They generally disappear with the shedding of those members facing which they are located.

The changes in the teeth, after the first year, are characterized by the longer periods which divide them. Months have heretofore separated the advent of single pairs; but from this date these appearances are to be reckoned by numbers and by years. The foal has teeth sufficient to support and to maintain its growth. Preparation is being made for the advent of the sixth grinder, and for changes in those milk molars which were in the mouth when the animal was born. At the same time additional width is needed to allow the permanent incisors to appear when their time comes. In the front teeth of a two-year-old, there is a want of that fixedness which, one year before, was characteristic of these organs. The central nippers have done their duty, or, at all events, something approaching to maturity has been attained.

Three years old is the period when the greater number of colts are brought to market. The bit then is put into its mouth, and it is driven from the field. At a period of change and of debility it is expected to display the greatest animation and to learn strange things. When its gums are inflamed; when the system is excited; when the strength is absorbed by an almost simultaneous appearance of twelve teeth, it is led from the pasture and made, with its bleeding jaws, to masticate sharp oats and fibrous hay.

It has been said that a three-year-old colt cuts twelve teeth. The engraving presents half the lower jaw of an animal of that age. Those organs which are of recent appearance will be recognized by their darker color, by their larger size, or by their differing in shape from the other members. These new teeth are a central incisor and the first two grinders. The horse has two jaws and two sides to each jaw; therefore the same number being present within each side of both jaws, the teeth already alluded to appear during the third year. However, even this quantity rather understates than overrates the fact, for frequently the tushes are cut during this period. In such a case the colt acquires no less than sixteen teeth in twelve months.

The four-year-old has to perfect as many teeth as are known to protrude into the mouth of the three-year-old. But the pre-

the time of the appearance of the tushes is uncertain. They may come up at the third or the fourth year; sometimes they never pierce the gums, it being very far from uncommon to see horses' mouths of seven years without the tushes.

By the end of the fourth year the colt has certainly gained twelve teeth. By this time there should exist, on each side of both jaws, one new lateral incisor and two fresh molars, being the third and the sixth in position. The appearance of the mouth now indicates the approach of maturity; but the inferior margin of the lower bone still feels more full and rounded than is consistent with the consolidation of an osseous structure.

The process of dentition is not finished by the termination of the fourth year. There are more teeth to be cut, as well as the fangs of those already in the mouth to be made perfect.

The colt, with four pairs of permanent incisors, has still the corner milk nippers to shed, yet while the provision necessary for that labor is taking place within the body, or while nature is preparing for the coming struggle, man considers the poor quadruped as fully developed and as enjoying the prime of its existence.

The teeth may be scarcely visible in the mouth, nevertheless such a sign announces the fifth year to be attained. There are, at five, no more bothering teeth to cut. All are through the bone and the mouth will soon be sound.

The indications of extreme age are always present, and, though during a period of senility the teeth cannot be literally construed, nevertheless it should be impossible to look upon the "venerable steed" as an animal in its colthood.

Gleason's Entire New Method of Telling the Age of a Horse.

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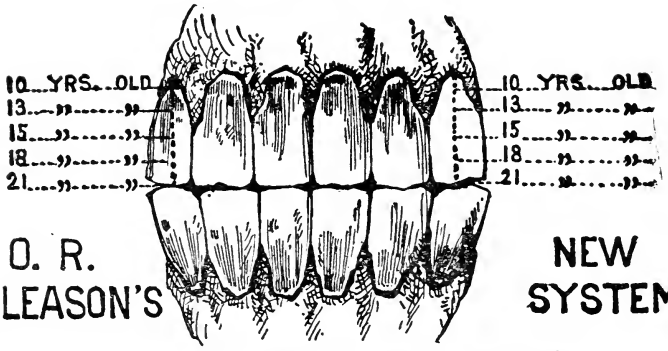
Question. How do you tell the age of a horse?

Answer. There are many methods of telling the ages of horses, but I have a new method, and one that you can always tell within one or two years of their correct age, which is as follows:

UPPER JAW



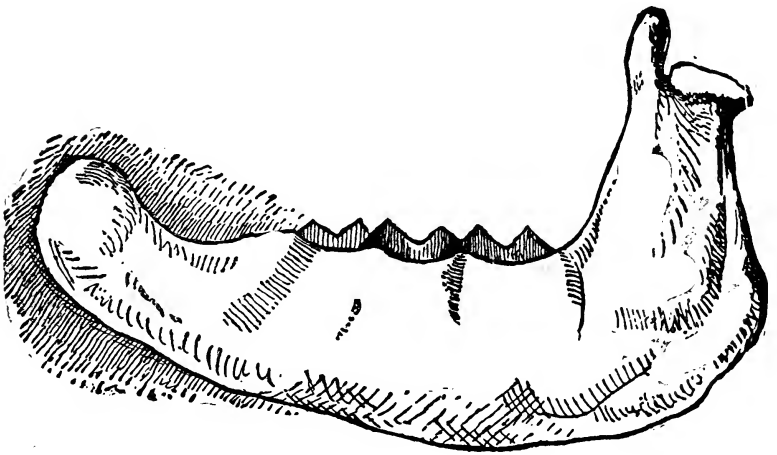
O. R. GLEASON'S NEW SYSTEM OF TELLING HORSES' AGE.

LOWER JAW

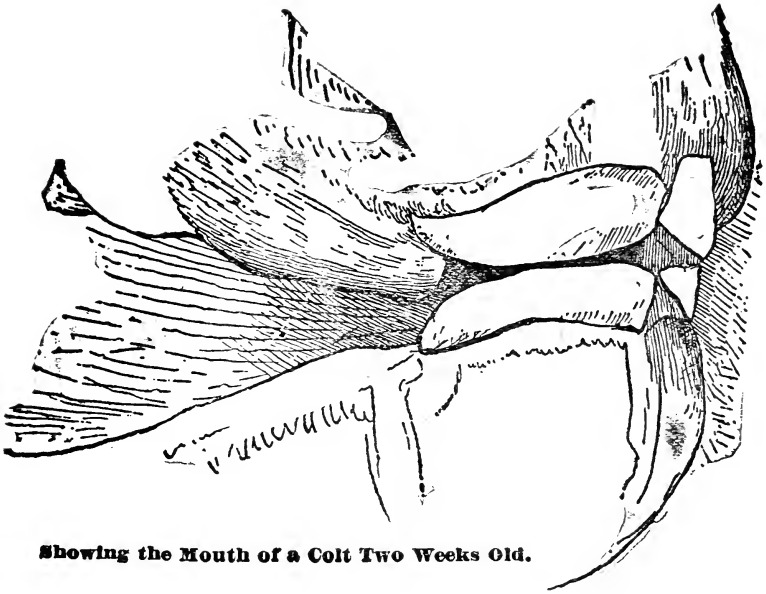
A horse has forty teeth—twenty-four grinders, twelve front teeth and four tusks. A mare has thirty-six teeth—twenty-four grinders, twelve front teeth, and sometimes they have tusks, but not very often. Fourteen days old a colt has four nipper teeth, at three months old he has four middle teeth, at six months old he has four corner teeth; at one year old the cups leave the nipper teeth, at two years old the cups leave the middle teeth, at two and a half years old he sheds his nipper teeth, at three years old full size nipper teeth; three and a half years old he sheds his middle teeth, four years old full-size middle teeth; at four and a half years old sheds his corner teeth; five years old, full-size corner teeth; six years old, large cups in corner teeth, small cups in middle teeth, and still smaller cups in nipper teeth; seven years old, cups leave nipper teeth; eight years old, cups leave the middle teeth; nine years old, cups leave the corner teeth; at ten years old a dark groove will make its appearance on the upper corner tooth; at fifteen years old the groove will be one-half way down the upper corner tooth; at twenty-one years old the grooves will be at the bottom. At this age give your horse his time and let him have rest in his future days.

The groove alluded to will be found on the corner tooth of the upper jaw, running down the middle of the tooth. When a horse is from fourteen days to six years old, I judge by the appearance of both jaws; when from six to ten years, by the lower jaw, and when from ten to twenty-one years, by the groove in the upper jaw. The above is the only true system in the world, to my knowledge, for telling a horse's age.

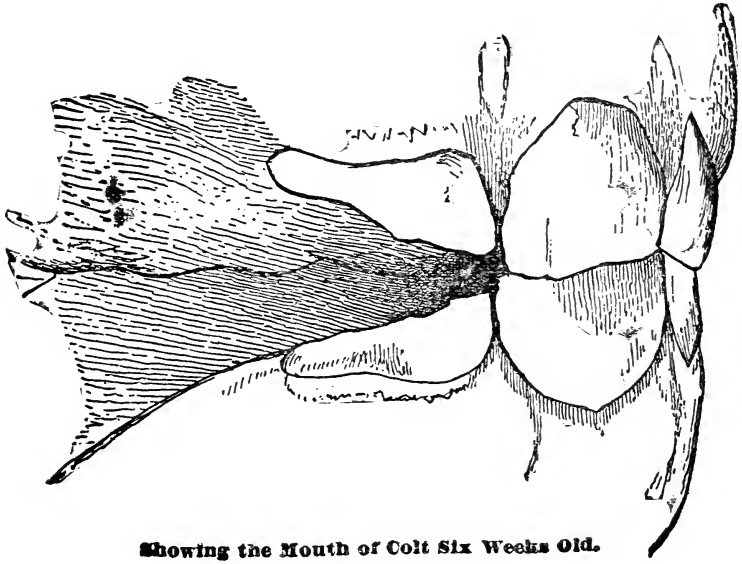
Gleason's Practical Illustrations of the Age of the Horse.



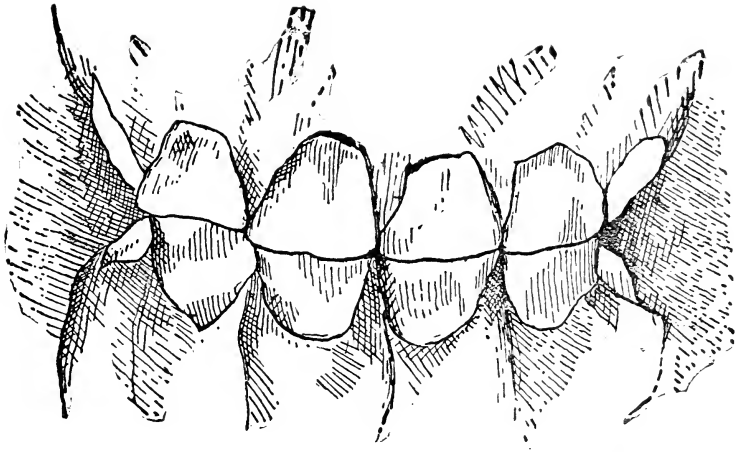
The Foal's Jaw at Birth.



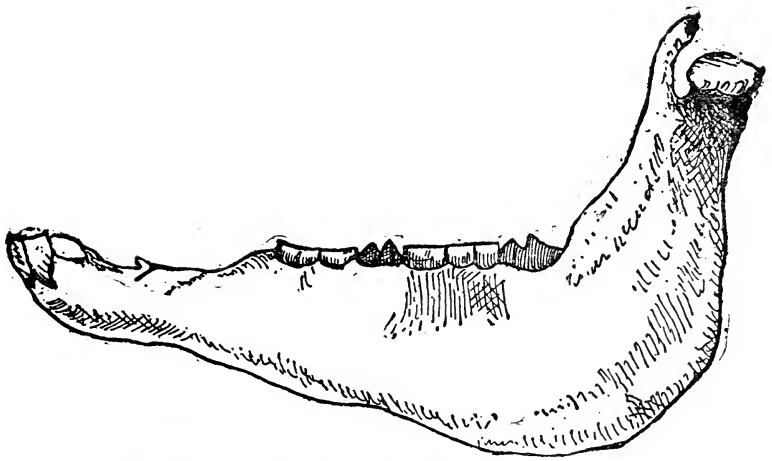
Showing the Mouth of a Colt Two Weeks Old.



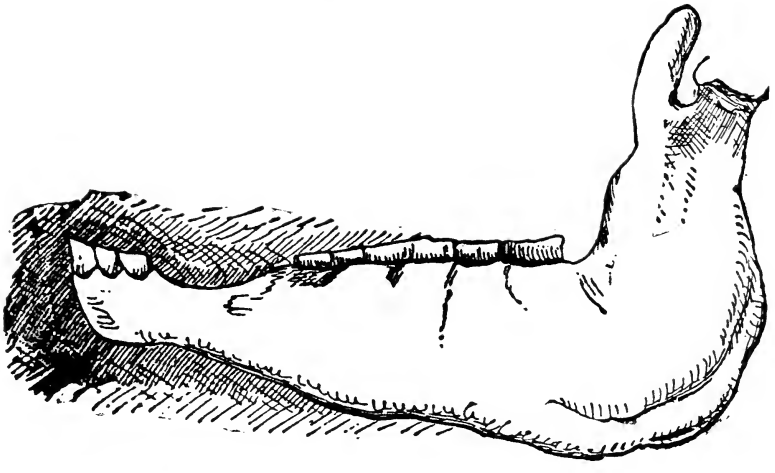
Showing the Mouth of Colt Six Weeks Old.



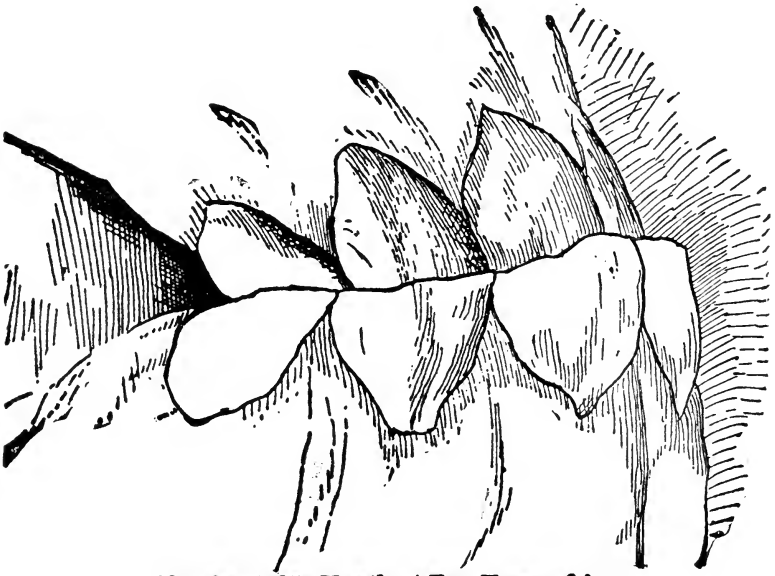
Showing Front Teeth of Colt at Nine Months.



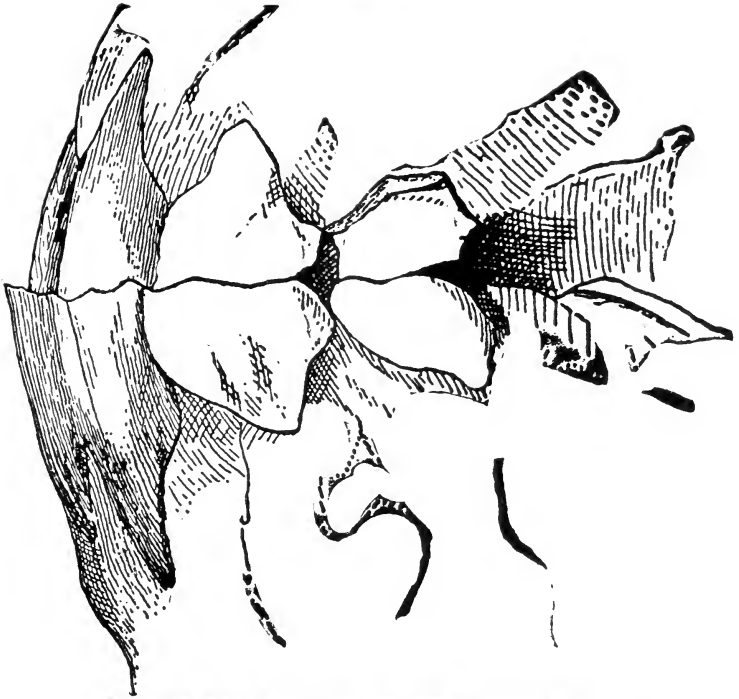
Side View of Jaw of a One-Year-Old Colt.



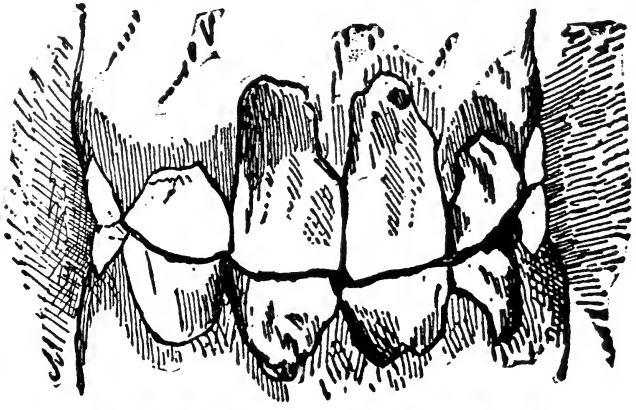
Side View of Jaw of a Two-Year-Old Colt.



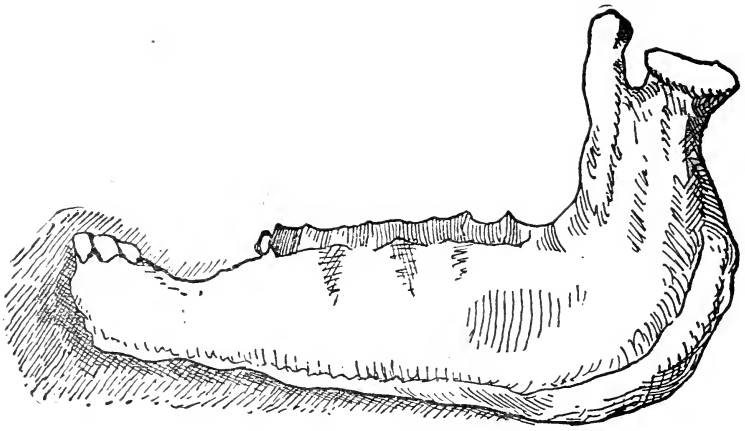
Showing Colt's Mouth — Two Years of Age.



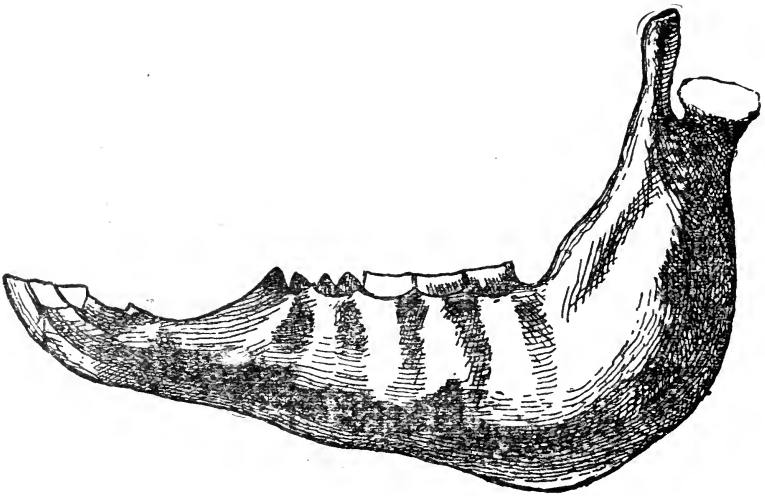
Showing Mouth at Two and a-half Years of Age.



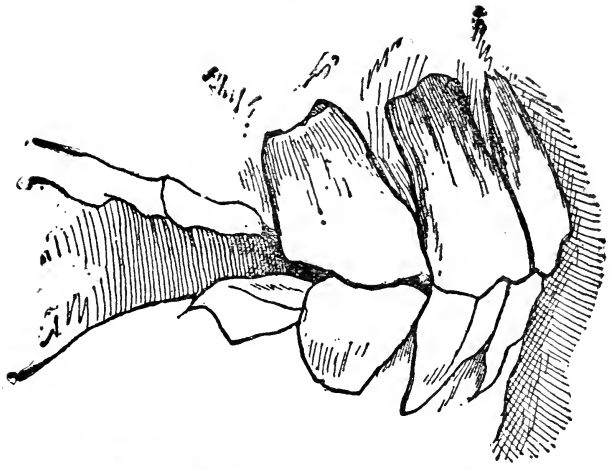
Showing Mouth at Three Years Old.



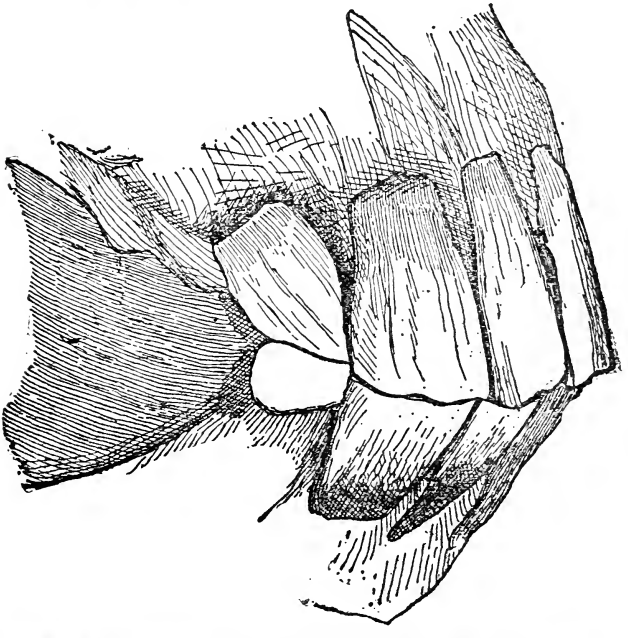
The Jaw of a Three-Year-Old Colt.



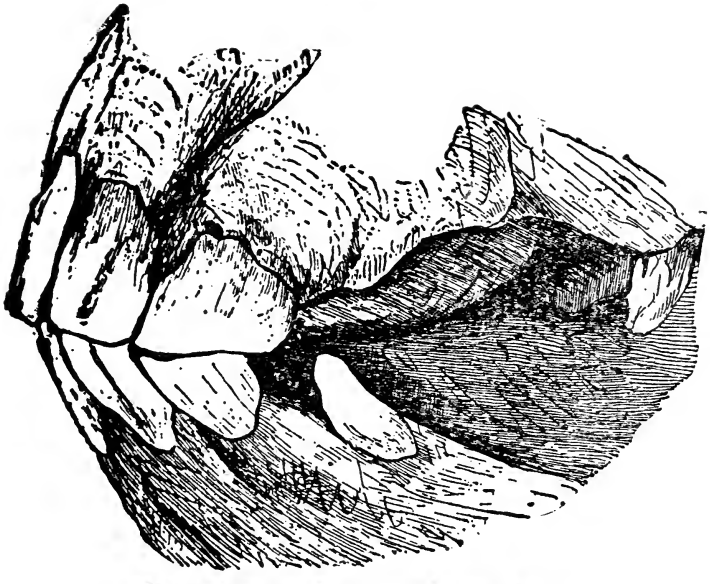
The Jaw of a Four-Year-Old Colt.



Showing Mouth at Four Years of Age.

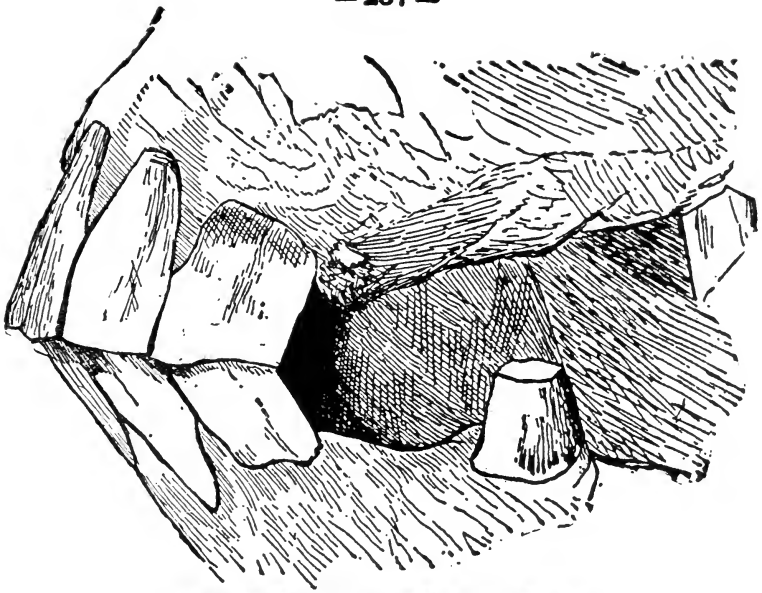


Showing Mouth at Four and a-half Years of Age.

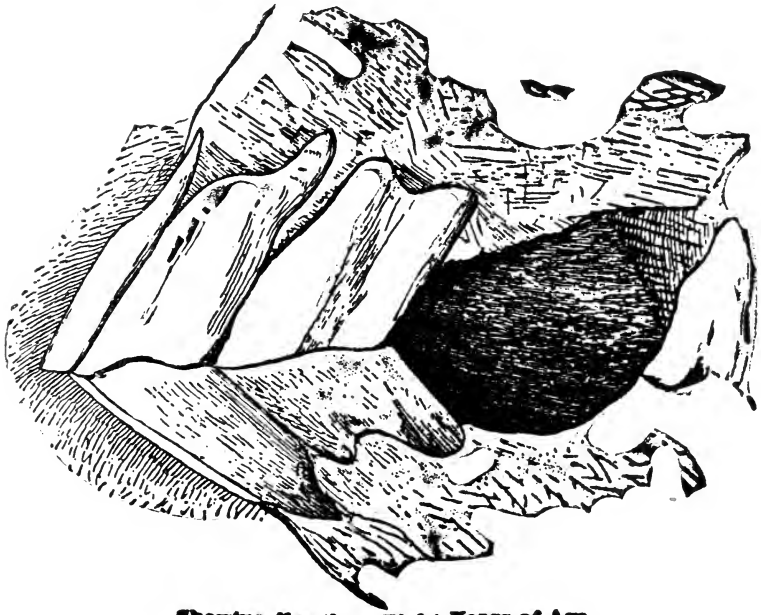


Showing Mouth at Five Years of Age.

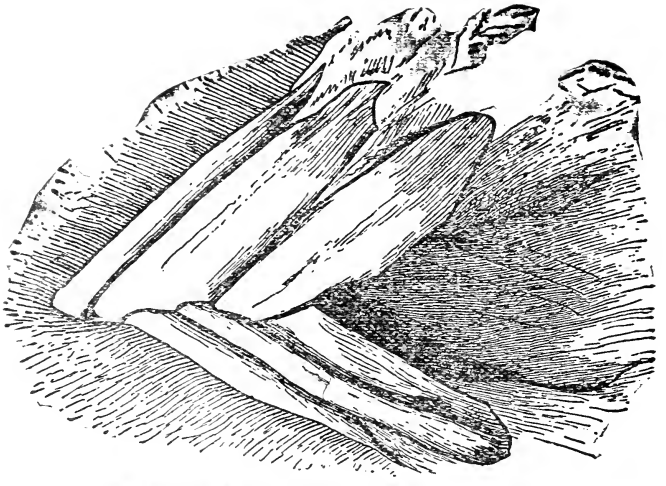
Showing Mouth at Six Years of Age.



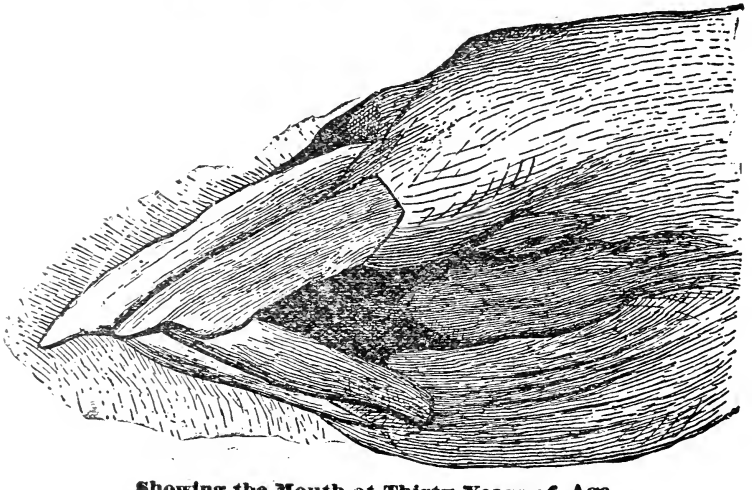
Showing Mouth at Seven Years of Age.



Showing Mouth at Eight Years of Age.



Showing Mouth Twenty Years of Age.



Showing the Mouth at Thirty Years of Age.

Having made a study of the horse's mouth during my fifteen years of experience, the above illustrations will be found accurate in all cases. But I will refer you to my new method of telling the age of a horse from fourteen days to twenty-one years old. Buy all horses by its instructions and you will never be deceived.

Remember This

To Tell the Age of Horses.

To tell the age of any horse,
Inspect the lower jaw, of course.
The sixth front tooth the tale will tell,
And every doubt and fear dispel.

Two middle "nippers" you behold
Before the colt is two weeks old.
Before eight weeks, two more will come;
Eight months, the "corners" cut the gum.

Two outside grooves will disappear
From middle two in just one year.
In two years from the second pair;
In three the corners, too, are bare.

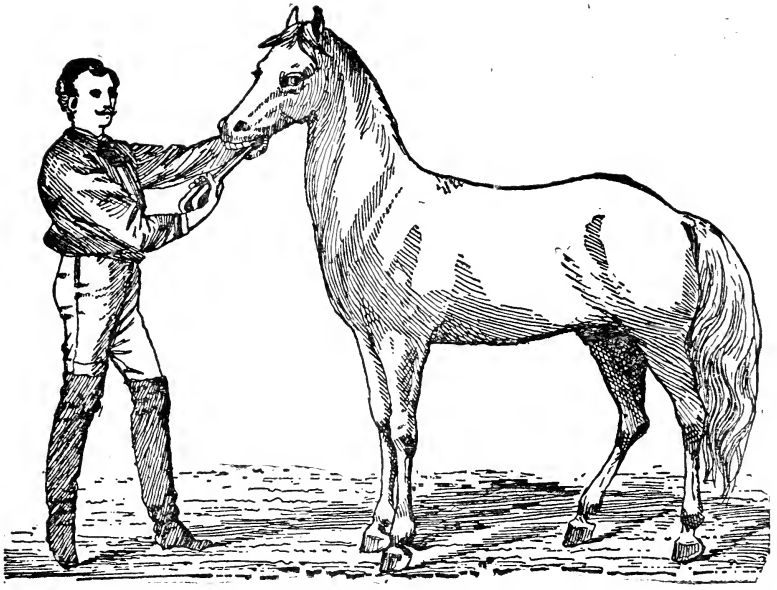
At two, the middle "nippers" drop;
At three, the second pair can't stop.
When four years old, the third pair goes;
At five a full new set he shows.

The deep black spots will pass from view,
At six years, from the middle two.
The second pair at seven years;
At eight the spot each "corner" clears.

From middle "nippers," upper jaw,
At nine the black spots will withdraw.
The second pair at ten are white;
Eleven finds the "corners" light.

As time goes on, the horsemen know,
The oval teeth, three-sided grow;
They longer get, project before,
Till twenty, which we know no more.

—GLEASON.



Horses' Teeth. Their Care and Treatment.

There are hundreds and thousands of horses that are suffering daily on account of their teeth. The upper jaw of the horse is one inch wider than the lower jaw, causing the upper grinders to shut half an inch over the lower grinders. This causes the upper set of teeth to wear sharp on the outside next to the cheek, and the lower grinders to wear sharp on the inside next to the tongue. After these teeth become sharp, in using a bridle on a horse, the pulling of the lines brings the cheek-pieces of the bit against the horse's mouth, pressing the inside of the cheek against the sharp edges of the grinders, causing inflammation and many times cutting large gashes. The horse will throw its head up and down, slobber, drive uneven, pull on the lines, many times will balk; his grain passes through him whole, he cannot masticate it properly. During my professional career, I have seen hundreds of horses become balky for no other reason than that their teeth were sharp on the edges, causing the mouth

and cheeks to become sore and lacerated, which, in a high-strung and nervous beast, causes him to balk. Now, to have your horse's teeth fixed, take a float or rasp and file off the inside edges of the teeth—just the sharp edges. Never let a man cut your horse's teeth with shears, as it is impossible to cut ivory without fracturing it. This operation of floating should be done once a year regularly. Always have the operation performed by a man of good judgment. Many a time a horse loses a grinder, then the opposite grinder is given a chance to grow, and eventually comes into direct contact with the opposite gum, making it impossible for the horse to eat at all. Examine your horse's mouth thoroughly; see that the teeth are even; if not, take a float and make them so. Many of our best veterinarians prescribe condition powders and medicines for horses that are in thin flesh, hide-bound, etc., when the proper operation upon the teeth will cure your horse without buying a lot of this trash.

HORSE-SHOEING DEPARTMENT.

Question. What do you think of horse-shoes and horse-shoeing in general?

Answer. There is no subject before the horse owners to-day that should interest them more than the subject of horse-shoeing. The force of this statement will make itself felt when you consider that there are in the United States at the present time over 14,000,000 horses, and that fully one half of them are badly crippled and almost spoiled by the sheer ignorance of the ordinary horse-shoer. I claim that more horses are made lame by this butchery than any other cause, for the reason that the majority of blacksmiths have not had the experience necessary to do the work as it should be done. They have not thoroughly mastered their profession. In order for a horse-shoer to understand the science of his profession and the anatomy of the horse's foot, it is necessary for

him to serve a long apprenticeship, and cannot be fully understood without a practical teaching and experience of five or seven years. There are horse-shoers who thoroughly understand their profession, and I recognize them as one of the greatest body of men that we have to-day in any profession There are rates upon shoeing that is being done at the present time by irresponsible parties, unskilled workmen, at the low rate of seventy-five cents for shoeing a horse all around. Now it is impossible for any blacksmith to shoe a horse and do his work in a scientific manner for less than $2, and from that to $3, per horse. It will be a great satisfaction to me, and I believe to the millions of horse owners, if a law should be passed in every State throughout America prohibiting a man from shoeing a horse or driving a nail into a horse's foot until he has served so many years as an apprentice. Then let him go to the capital of the State and there pass an examination that he is a qualified, capable and able horse-shoer, thoroughly understanding his profession. Let him then receive his diploma to show the world that he has gained his profession by hard study and work, and is ready to perform his work in a skillful manner.

If this should ever become a law, we should soon find out that we have only got a very few practical horse-shoers in the United States.

I hope that those who read my ideas upon shoeing will hereafter appreciate a good horse-shoer. Do not patronize your cheap mechanics, but patronize those who understand their profession. You will then encourage men of good judgment, good common sense, to work hard in order to elevate their profession.

Question. How should a horse be shod?

Answer. Pare the foot perfectly level; never take any more out at the heel than you do at the toe; never allow your horse's frog to be cut in any way, shape or form. If there are rags hanging to the frog let them remain there; never have the bars of your horse's foot cut. Let the horse-shoer cut enough of the sole out of the horse's foot so that the shoe will not rest or press upon the sole, leaving an equal bearing or pressure upon the sole of the horse's foot.

Have a shoe made that is concave from the third nail hole all the

way round to the other third nail hole, from the last nail hole back to the heel of the shoe; have it bevelled outwardly, having the shoe thinner on the outside at the heel than it is on the inside. My philosophy of this is, to let the horse's frog come down even with the shoe, as when he puts his foot down on the ground, by the shoe being bevelled at the heel, it gives the quarters a chance to expand.

You probably are aware of the fact that the horse's shoes that are manufactured at the present time are concaved all the way around; the result is that the shoe is slanting inwardly, and when the horse's foot is placed upon his shoe, with four nails driven upon each side, you have nailed his foot to an iron vise, and it is impossible for it to expand, for the reason that the shoe slanting inwardly causes the foot to contract. I would advise that all driving or saddle horses should only have six nails in the front feet and five in the hind feet; have them driven well to the middle of the horse's foot and come out of the horn as low as possible. Never file your horse's foot on the outside above the nail heads. Never file the crease under the clinches, as when you do you are weakening the crust of the horn of your horse's foot. You stop the growth of this live horn, causing the foot to become dry and brittle, and when the old shoes are removed you will find large chunks of the horse's foot breaking away with the old horseshoe nails.

Never have a red-hot shoe placed upon your horse's foot. It draws the moisture and the oil from the hoof, making it become dry and brittle. Nature never destined that a horse's foot should be burned with a red-hot iron—warm shoes placed upon a horse's foot will do no harm.

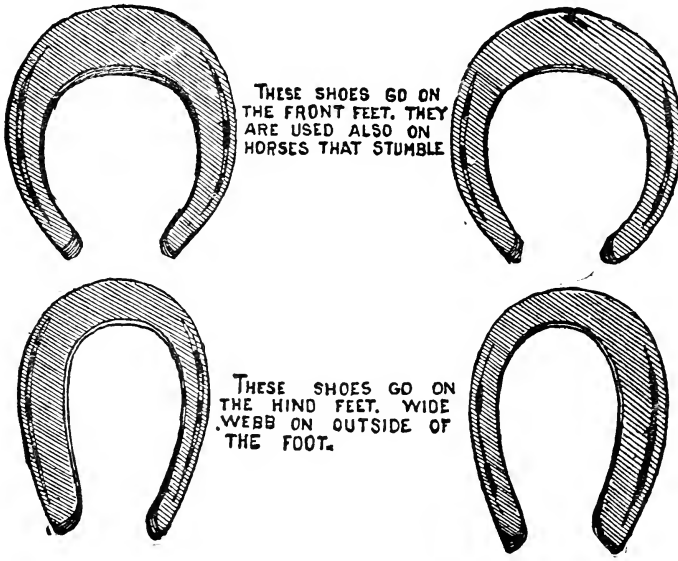
Always have the shoes made to fit the foot, and not fit the foot to the shoe, as is the practice with many would-be horse-shoers.

No scientific workman will contradict the above facts.

Question. How do you shoe a horse for overreaching?

Answer. Have a very heavy shoe on the front feet, having it very wide at the toe and narrow at the heel; put as much weight at the toe as possible; on the hind feet use my overreaching shoe with a wide web on the outside of the foot, which will stop any horse from overreaching.

(See engravings of shoes for overreaching). What will stop one horse from overreaching will not stop another; the blacksmith must use his judgment in all cases.


THESE SHOES GO ON THE FRONT FEET. THEY ARE USED ALSO ON HORSES THAT STUMBLE
THESE SHOES GO ON THE HIND FEET. WIDE WEBB ON OUTSIDE OF THE FOOT.

Shoes to Prevent Interfering and Overreaching.

Note.—The shoes as they are in the above illustration will stop almost any horse from interfering or forging; if they interfere with the front feet use the same kind of a shoe.

Question. How long should a horse wear his shoes?

Answer. Not over four or six weeks; then they should be reset, merely rasping the feet off level. Do not cut away at the heels more than you can possibly help.

Question. How heavy should a horse's shoe be?

Answer. For all driving and saddle horses, they should wear fourteen-ounce shoes on the front feet, eight-ounce shoes on the hind

feet. All team horses and heavy draft horses must be shod according to their weight and size. I am an endorser of light shoes for all driving horses, as horses pick up and put down during a day's work in the neighborhood of about fifty-three tons of iron, and you will quickly see that the lighter your horse is shod the better it is for him in going a long journey.

All trotting horses must be shod according to the judgment of their drivers. They should shoe them to balance, and gait them to the best advantage for speed.

Question. What shall I do for a horse with corns?

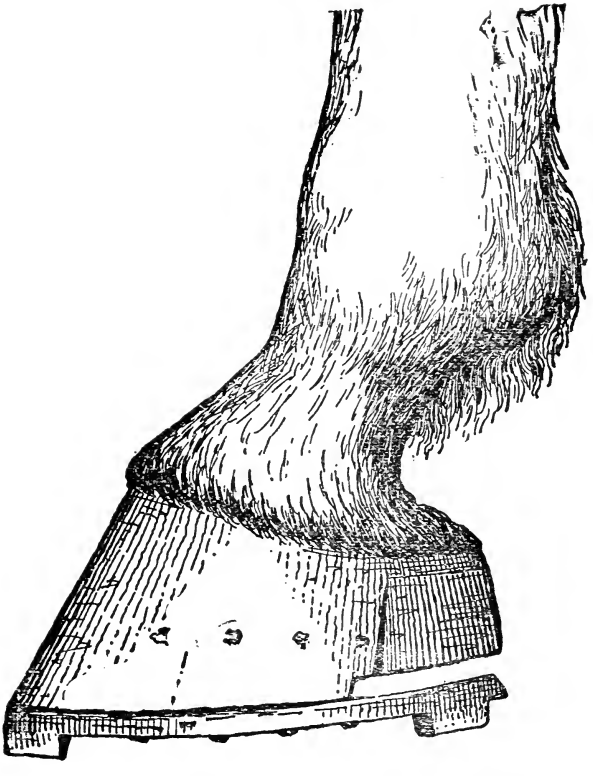
Answer. Have the foot pared perfectly level; then fit the shoe to the foot the same as for a sound horse's foot; then at the quarter where the corn is, take and cut down about one-quarter of an inch, taking right out a chunk of the wall, making a shoulder, so that when the shoe is placed upon the foot the quarter that the corn is on will have no bearing whatever upon the shoe. Put in some good strong liniment or caustic and a little cotton over the corn under the shoe. My idea of a corn is to remove the cause, and the corn will gradully waste away. My idea of shoeing in this way is, if you have a corn on your own foot and you relieve the pressure of your boot from that corn it certainly does not bother you. The same way with the horse. Horse-shoers, in shoeing a horse for this complaint, should use the same judgment that he would for himself.

Question. How shall I shoe my horse for a quarter crack?

Answer. On exactly the same principle as for corns

(See engravings of horses shod for quarter crack).

You must take off all the pressure that you possibly can off the diseased quarter, throwing it upon the sound part of the foot. I only lay down a few of the principal rules for you to go by. All horses being shod must vary according to the style and shape of their feet, and in all cases the blacksmith must use his own judgment.



To Shoe a Horse for Quarter Crack or Bad Corn.

Question. How can I cure a sand or toe crack?

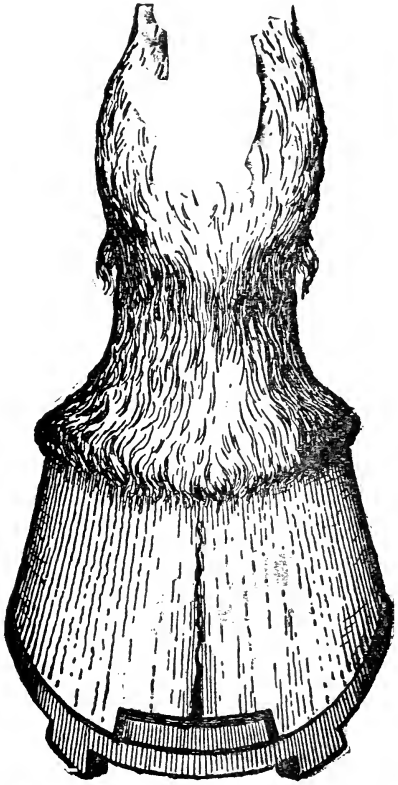
Answer. Shoe the horse the same as for corn or quarter crack.

(See engravings for the above).

Question. What shall I do for a horse that stumbles when driven?

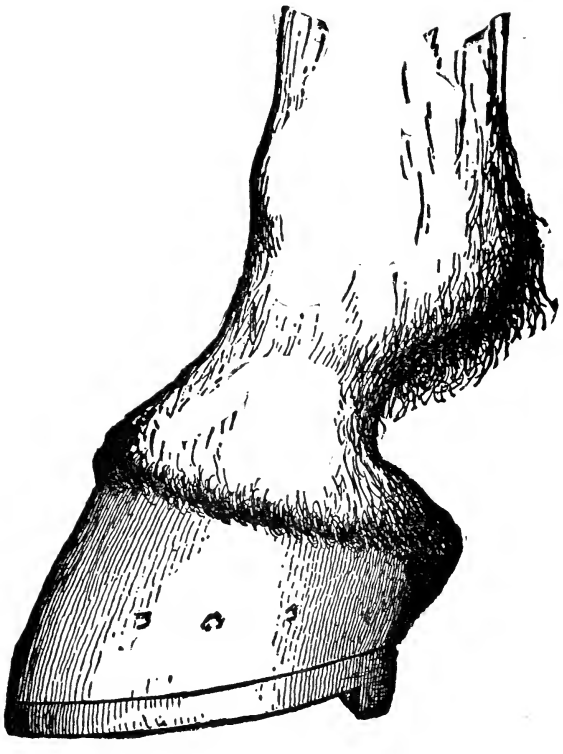
Answer. Pare his toes; have them much lower than the heel, and use as heavy a shoe as possible, with all the weight of the shoe at the toe. This will give him the proper knee action, and prevent him from stumbling, unless he is weak in the tendons; if so,

use any of my liniments laid down in this book, rubbing them in the cords and tendons of the horse's limbs. Give him a little rest until you get him properly strengthened. Many horses stumble from nothing but weakness, and rest will cure them.



Proper Way of Shoeing for Toe or Sand Crack.

The following engraving shows a horse shod with a high-heeled shoe, which will cause him to stumble; also will cause his tendons to become contracted and cause general disease of the limb. If you have caulks put on the shoe, have the toe caulk the same height of the heel caulk, giving the shoe an even bearing.



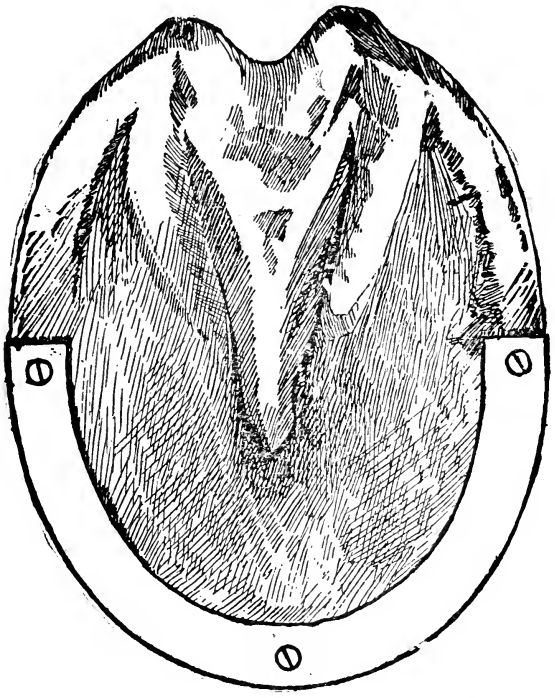
Question. How should a driving or saddle horse be shod in the summer time?

Answer. With a plain flat shoe, as light as possible. I am a great believer in having all driving horses shod in the front feet, with half shoes, known to horsemen as "tips." (See engraving.)

All farm horses should be shod with the half shoe.

The following engraving shows the half shoe known as the "toe-tip." All driving or saddle horses should be shod with this kind of shoe during the summer months, giving a full frog pressure, and in

many cases it will cure the worst case of contracted feet. I would recommend this shoe to be used on all government horses.

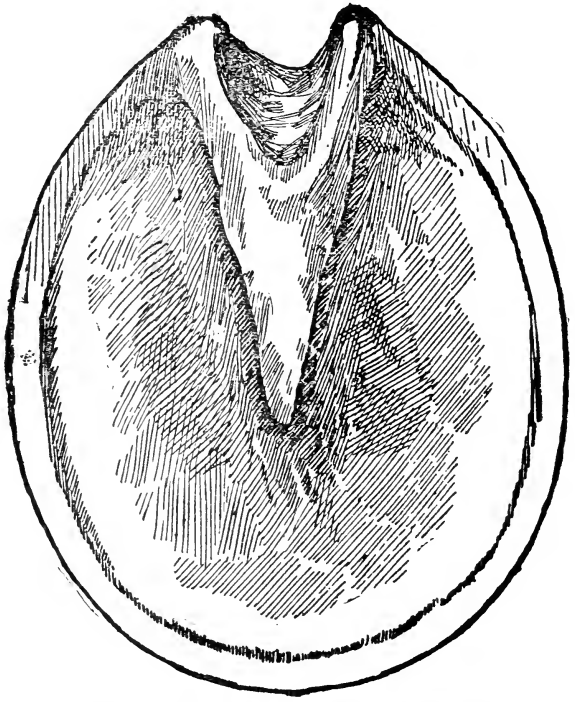


Question. Should a horse be put in a soaking tub?

Answer. I do not believe in soaking horses' feet; it is overdone. There are cases where it will benefit a horse, but when carried to extremes it is injurious to the animal's feet, as the more you soak the drier the hoof will become. Look at the trotting horses to-day; they are being soaked out every morning, and when they are seven or eight years old their feet are completely ruined. One of the greatest and best treatments to soften a horse's foot, and to cause it to grow, is to walk the horse early in the morning through grass when the dew is on it. This will cause your horse's foot to soften, and start it to grow very rapidly.

Question. Do you believe in putting ointments on a horse?

Answer. I do not recommend the use of all kinds of hoof ointments that are now going the rounds, but there are ointments that, if placed upon the cornet of the horse's foot and on the heel, will be of great benefit in order to expand and give the horse's foot a chance to grow or increase its growth. I would advise you to never use oil upon your horse's foot.



Showing the Effects of the Soaking Tub.

Question. Do you approve of the bar shoe?

Answer. I do not believe in the use of any bar shoe, only in cases where the horse has a drop sole, or a very flat foot, then I approve of the whole bottom of his foot being covered with iron; or, in other

words, a whole plate covering his foot and protecting it from the earth. (See engravings of my ideas.)

Question. How can I cure a horse's contracted foot?

Answer. Pare his foot perfectly level, cutting the horn down until the frog will come even with shoe, if possible. Put on a poultice made of—

Linseed meal	1 quart.
Charcoal	1½ pints.
Soft Soap	1 quart.

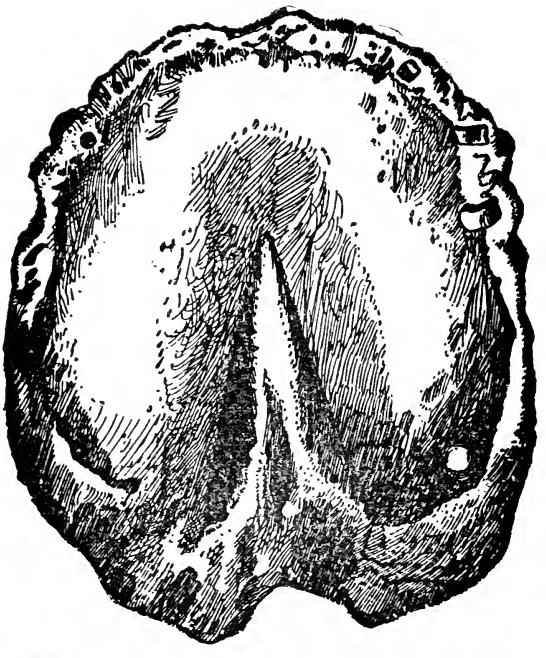
Mix this all together, and put on the bottom of your horse's foot every twelve hours for five applications.

Use skunk oil on the hoof-band of the horse's foot every morning for three weeks; then put on a shoe made bevelled at the heel, having the shoe not thicker at the heel than it is at the toe. Open the heel a little with the knife, and turn your horse out to pasture. Let him run thirty days, then bring him up and have him reshod, and turn him out again for thirty days. He is ready then to drive, and with proper care in shoeing him, you will have no trouble with your horse. Remember, in order to have a thorough cure, you must follow the above directions.

The next illustration shows the effects of soaking a horse's foot daily through a campaign on the turf. The little spot shown in the upper left hand corner is a corn, which in the majority of cases is caused by the shoe resting upon the bar of the horse's foot. This becoming bruised causes a callous, the same as upon a person's toe, which forms a corn. Can be cured by following treatment laid down elsewhere in this book. In all cases to relieve a horse from pain from this cause, you must relieve the pressure of the shoe against the corn.

Question. What kind of a horse-shoe do you approve of?

Answer. I approve of only the old common-sense shoe, made as plain as possible. The only thing we have to do in shoeing a horse, is to prevent the wall of the horse's foot from cracking away. If we did not have any pavements for our horses to travel over I believe that it would be unnecessary to shoe any horse whatever. There are a great



Showing the Effects of Soaking a Horse's Foot Daily through a Campaign on the Turf.

many shoes to-day before the American horse owner; some are patented and some are not. They are introduced by specialists and men that are seeking to produce something new to make money out of. But let me say I do not believe that there ever will be a shoe manufactured that will do away with the plain, good common-sense shoe, forged and made by hand by a practical horse-shoer. I condemn all machinery-made shoes, and only recommend shoes forged and made by hand. (See engraving on opposite page for my idea of horse-shoes.)

Question. How many blacksmiths or horse-shoers are there in America?

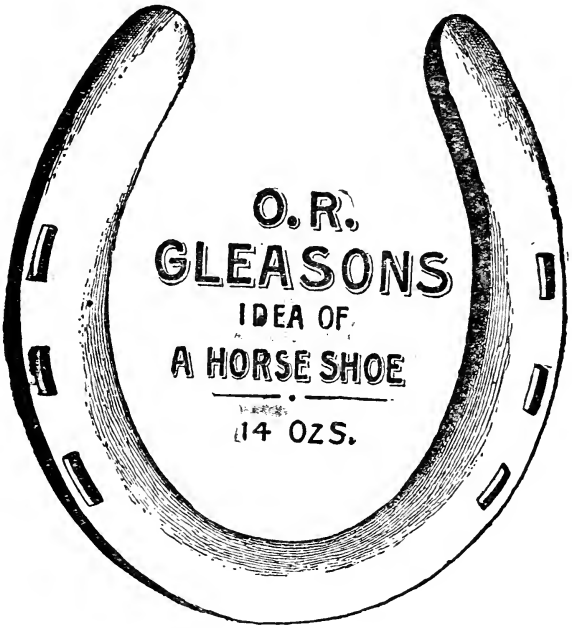
Answer. 172,726 horse-shoers.

Question. How many horses in America?

Answer. A little over 14,000,000 and 2,162,808 mules.

Question. What shall I do to stop my horse from interfering?

Answer. Pare his feet perfectly level, then have a shoe made that is about an inch and a half wide; the web on the outside about three-quarters of an inch on the inside; put the wide web part on the outside of his foot, the narrow web on the inside. After you drive him,



if he should interfere, pare the foot a little lower on the inside than it is on the outside. This will stop the majority of horses from interfering.

Question. Will it work the same on the front feet that it does on the hind feet?

Answer. Yes.

Question. What do you think of shoulder jam and sweeny?

Answer. There is no such disease known to the veterinary science. There is a wasting away of the muscles of the horse's shoulder, caused in many cases by the contraction of the horse's feet or the strain upon the tendons or contractions of the same. In order to get a sure cure, treat the foot and the limb, and the shoulder will take care of itself. (See my Veterinary Department.)

Question. Will you give me some general points on the horse's foot?

Answer. Never shoe a colt until he is three years old, or put him to work until he is five years old.

Never allow a blacksmith to sand paper a horse's foot.

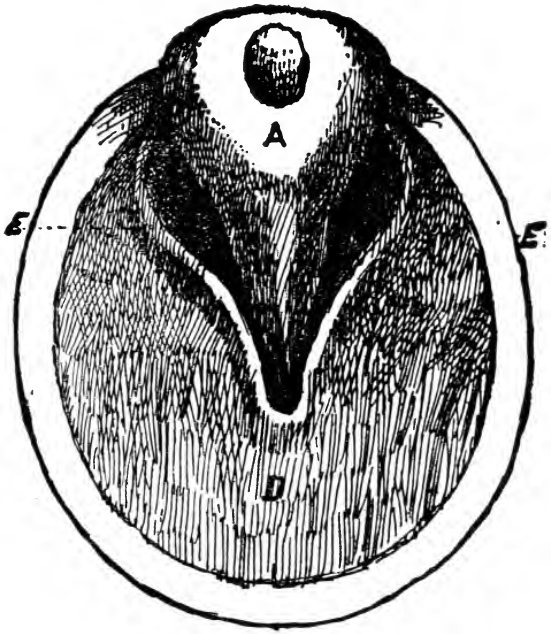
Never have the bars cut or the frog cut. The frog, when in health, will shed four times a year and grows the same as your finger nail.

Always have the horse shod at least once in four or six weeks. Pay your blacksmith well for his work.

For all light driving and saddle horses use No. 6 nails in front feet, and No. 5 nails in the hind feet. For heavy draft horses you can use larger nails.

Never have over fourteen-ounce shoes on a light driving horse.

Some owners and drivers have a habit, which I do not approve of, when they come in from a drive, particularly in the spring of the year, and their horses are covered with mud, to order the groom to direct the hose on the horse's legs to wash off the dirt. Let me say that the cold water has a bad effect and brings on sundry complaints. Let the mud stay on until it dries, then remove it with a brush; it will come off very easily and look fully as well as if washed, and will prevent your horse from having grease heel and many other diseases of the kind which are caused from the above treatment, which is generally practiced by every horse owner.

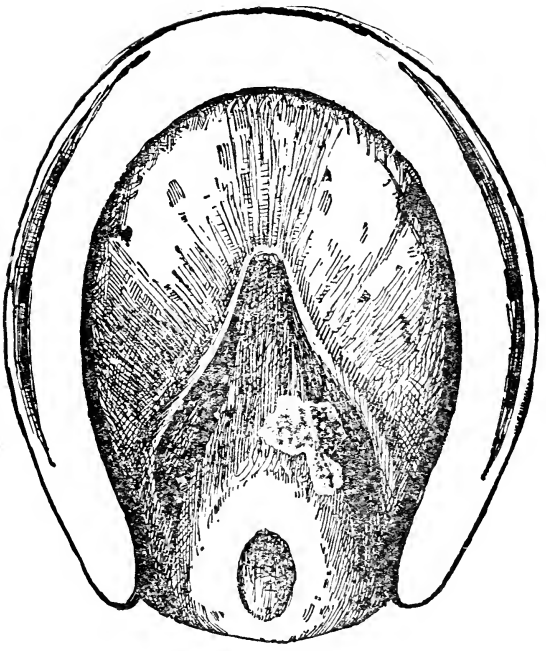


The Horse's Perfect Foot.

A shows a healthy frog, that has never been cut by the blacksmith's knife, or otherwise diseased. Never allow your blacksmith to cut the frog or any part of it. If it is ragged, let the rags hang; nature will take its course, and they will shed off in due time.

E E shows the bars of the horse's foot. Never allow these to be cut. Never allow the heels of the shoe to rest on them; they are placed in a horse's foot the same as a beam is placed in a building, to keep it from contracting the frog, placed between to act as a wedge in supporting them.

D represents the sole of a horse's foot. Have enough of this cut away so that the shoe will not press upon the sole. Have your horse reshod regularly every four weeks.



A Horse's Foot Perfectly Shod.

The frog, in cases where it can be, should come down level with the shoe. The above illustration shows the way all horses should be shod, except when caulks are required. Caulks should always be low, and all shoes be perfectly level, no thicker at the toe than at the heel.

Question. What are a few good general points on horsemanship?

Answer. Match horses with reference to size and motion, particularly to color, if you can.

Always have inside lines on double team quite long and back straps short.

Never check a horse if you wish him to last long.

Never feed from mangers. Let your horse eat his food from the floor even with his feet. A great many horses suffer from indiges-

tion and are made stiff and lame from eating from hay-racks and mangers, which is unnatural to the animals.

Water and oats should be given first, hay afterwards. If you are working your horses hard, give them very little water at night.

Always stop at the top of the hill and let your horse get his breath. If you have ever run up hill yourself think of your horse.

Always have the shoes fit the foot and not fit the foot to the shoe.

Never cut the bars of a horse's foot.

For a coughing horse, wet his hay and not his oats.

Never let your horse stand facing a cold wind.

Always feed light when changing feed.

When training a horse in a barn, have carriages and all objects removed, only those that you are using.

Use very few words with a horse, but have them thoroughly understood.

Be earnest and prompt, but not harsh.

Always approach a strange horse near the shoulder.

Never pat or caress a horse on the head; always pat him on the shoulder. Think of some person coming up to you and patting you on the head. What would you do?

Teach your horse before whipping, and, when you whip, do it to frighten, not to enrage him.

Never jump from a wagon when your horse is running away.

Always exercise sound judgment by purchasing a horse suited to the business you require of him. Some horses are good saddle horses, but might not make good cart horses.

If your horse cribs—sell him.

Who buys a horse needs a hundred eyes.

Always try before you buy.

Use your own judgment, and never take others' opinions.

Your first thought is always the best.

Never spare time or labor to relieve a suffering animal. Remember he is a dumb brute and cannot talk to you.

In treating a disease that a horse may have, never spare a hair to do your work faithfully for the noble animal.

Never have a blacksmith to put a red-hot shoe on your horse's foot.

Always patronize the best horse-shoers of your city. It is one of the greatest professions known to-day.

Do not overload your animal.

Have your horse's shoes reset every four weeks.

Never soak your horse's feet.

Never clip a team horse. Driving horses can be clipped if their owners will see that they are properly cared for, but I do not approve of clipping any more than I would take off my overcoat in winter.

Never have your horse's tail cut off. He needs it to switch flies with in the summer. Any man that will order this to be done should serve five years in the State Penitentiary.

The best feed for horses—good oats, good hay, good pure water. Never give over twelve quarts a day.

Always see that your wagons are greased twice a week.

See that all collars are properly cleaned after using, in order to prevent gall and sore necks.

When using your saddle in a storm, see that the blankets are properly dried before using again.

Always have the collar fit your horse's neck properly.

See that all saddles fit your horses properly.

In the winter time be very careful and not put a cold iron bit in your horse's mouth. Think of yourself, and you will have sympathy for the dumb brute.

Drive slow in turning corners.

Don't hit your horse with a whip unless he knows what you hit him for.

Use as little medicine as possible, but prevent sickness in your horses by giving them the proper care and attention.

Give your horse who works hard through the day a good bed to sleep on.

The curry-comb and brush, well used twice a day, is as good as three quarts of grain.

Feed your horses regular. Water them often when doing hard work in very warm weather.

Give bran mashes twice a week.

Use only the best of hay. It is the cheapest in the end.

Have horses shod as light as possible. Never use over six nails in the front feet and five nails in the hind feet for all light driving or saddle horses.

When breaking a horse, use as light a break-wagon as possible.

Make your lessons short.

Never lose your temper. Always have plenty of patience.

Never drive fast down hill.

Let your horse walk up hill.

Let him go on the level.

When you are coming from a drive and your horse is very warm, let him stand five minutes and steam before you put a blanket on him.

Before leaving him for the night, change blankets—a dry one for the wet one. Nine-tenths of the diseases of horses are caused from their not having the proper care.

If you have a heavy horse, sell him.

Never put a horse to hard work until he is five years old.

Packing and Soaking Horses' Feet.

It is the practice among many horse owners, and especially trotting horse trainers, throughout the country, to pack and soak their horses' feet. This I do not approve of, and believe it is wrong, and that it has ruined thousands of our most valuable animals. Why? Because it is carried to extremes. When you soak a board and dry it, the second time it is soaked it is much drier than it was at first, and every time you soak it the drier and more brittle it will be each time. Why does not the horse's hind feet become contracted? Because, whether it be a horse or a mare, it spatters more or less of its urine upon its feet, the ammonia drives all diseases from the hoof, and the water keeps them soft. In the summer time, as I have already mentioned, I recommend that the horse be led early in the morning through the dew. Let the reader stop for a moment and think of some time when he was out walking in the early morning, with good, thick boots on, and he will remember that in a very few minutes he b gan to feel the moisture of the dew penetrating through to his feet. Dew passes through the boot when water would not. This works the same upon horses, nature having provided this simple preventive and cure for diseases of the hoof. It cleans the feet and causes them to soften and expand. If your horse has hurt his

feet or injured his limb by running a nail in his foot, or anything of that sort, I approve of giving him a good soaking, and poulticing the injured member; but never pack your horse's feet with oil meal, or soak them for the purpose of keeping the horse's feet soft. Use my hoof ointment as laid down in the Veterinary Department, and follow its directions. In order to show horsemen that the above theory is correct, how many horses do you see that have been campaigned for two or more seasons whose feet are not contracted, become hard and brittle, so that they are almost useless for the track or even for ordinary driving purposes? I claim that every stable should have half a barrel placed in some corner with a notice above it "urinate here," and two or three times a week each horse should be swabbed off with the urine. To do this take a broom-handle and make a swab on the end of it with rags. Dip this into the urine and let it run down the legs and feet, commencing with the knee. Do this until the leg and hoof is thoroughly soaked.

Applying Moisture to the Cornet of the Horse's Foot.

A Few Points.

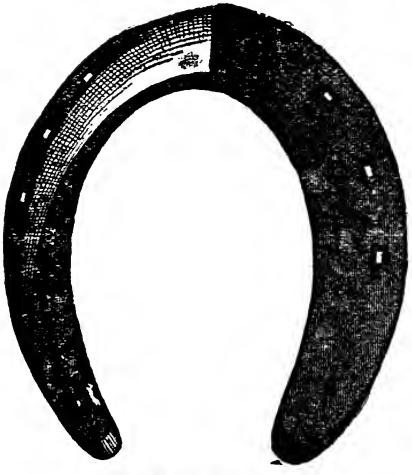
Never pack your horse's feet.

Never allow a blacksmith to sand-paper your horse's hoof.

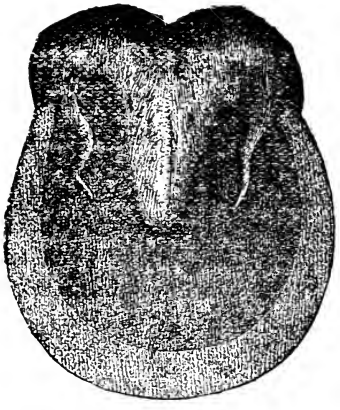
Never allow oils of any kind to be placed on the outside of a horse's hoof, as it closes the pores. In order to keep a horse's foot in good order, and free from disease, take a pail full of salt water and wash his legs, from his knees down, three times a week.

Where your horse's foot is contracted, or the frog has become hard and dry, use poultice.

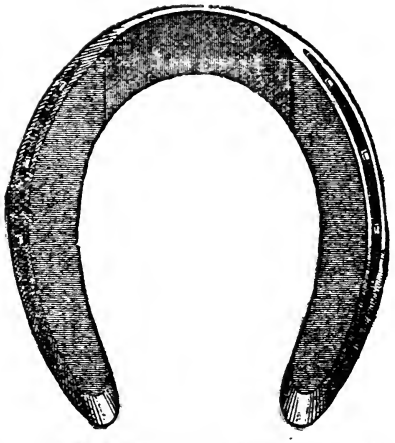
Toe weight shoe.



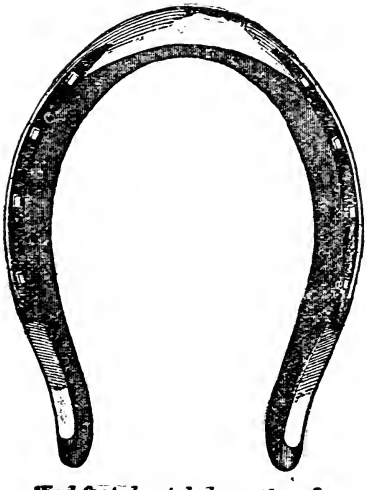
Non-paddling shoe.



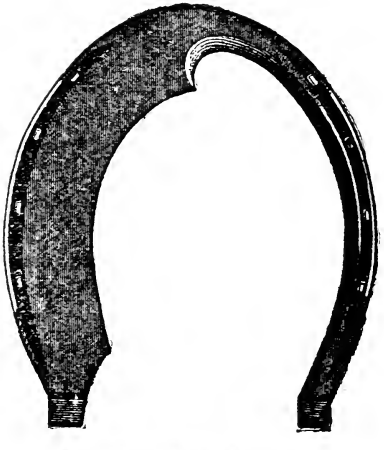
The foot ready for the shoe, showing frog and bars as they should be left.



Front view of scoop toe rolling motion shoe.

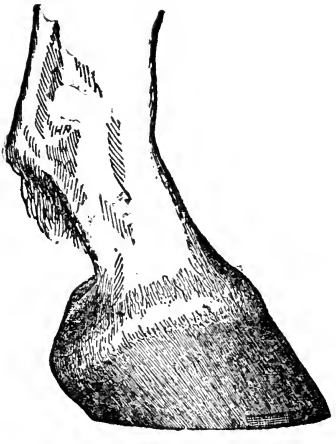


Hind foot shoe to balance the action.



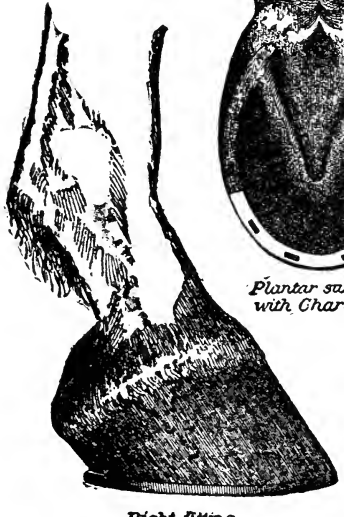
Side weight shoe for hind foot.

Foot prepared for Charlier tip.



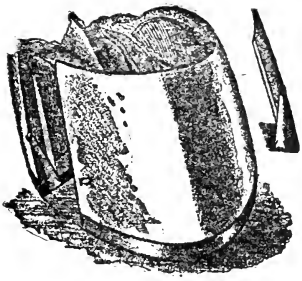
Foot shod with Charlier tip.

Plantar surface of foot with Charlier tip.

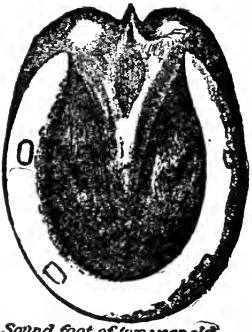


Right fitting.

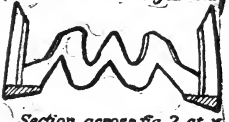
Wrong fitting.



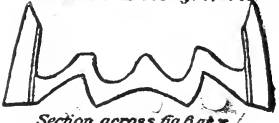
a, Nail properly driven,
b, Nail improperly driven.



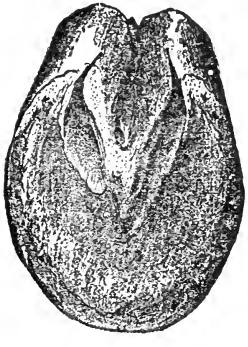
Sound foot of two year old.



Section across fig. 2, at x.

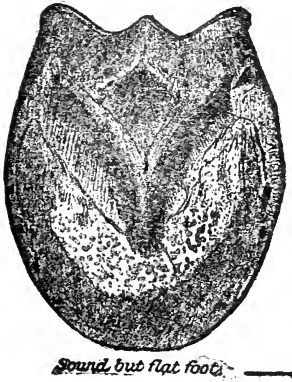


Section across fig. 6 at x.

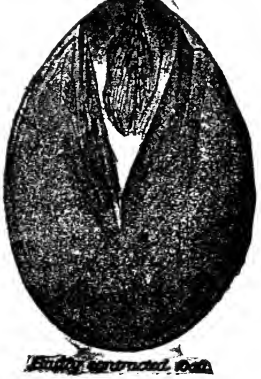


Contracted foot.

Section across fig. 7 at x.

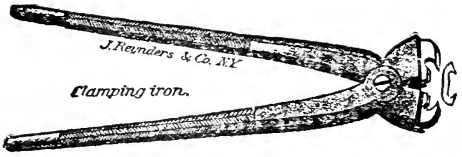


Sound but flat foot.

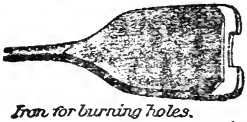


Rather contracted foot.

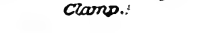
SOUND AND CONTRACTED FEET.



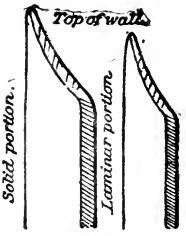
Clamping iron.



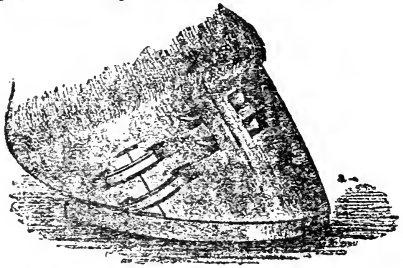
Iron for burning holes.



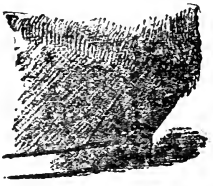
Clamp.



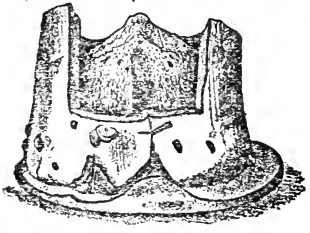
Actual thickness of walls of hoof.



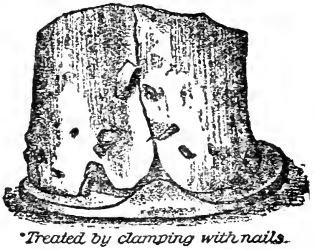
The clamp and natl. remedies applied.



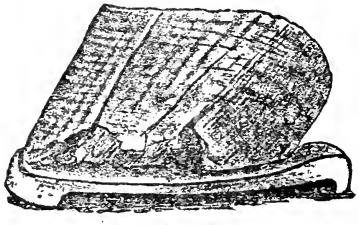
Quarter-crack with cross cut.



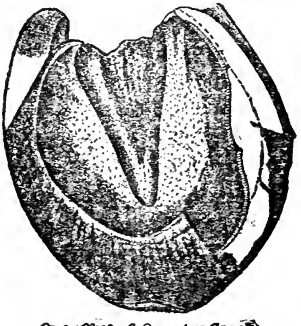
Toe crack. Wall removed to show absorption of coffin bone.



Treated by clamping with nails.

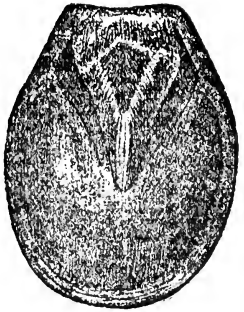


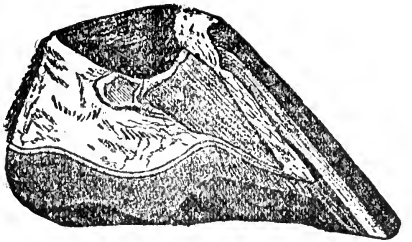
Cracked walls.

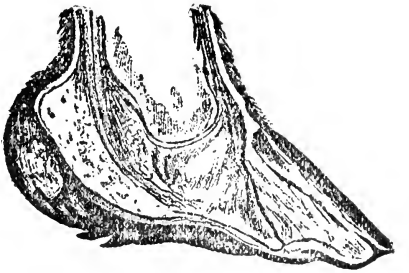


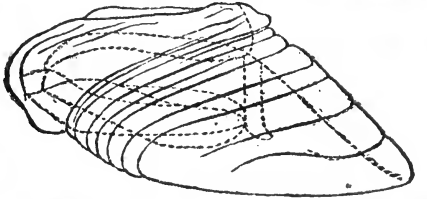
One effect of Quarter-Crack.

QUARTER-CRACK AND REMEDIES.

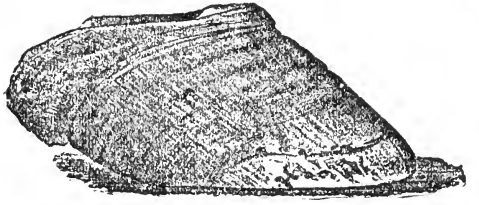




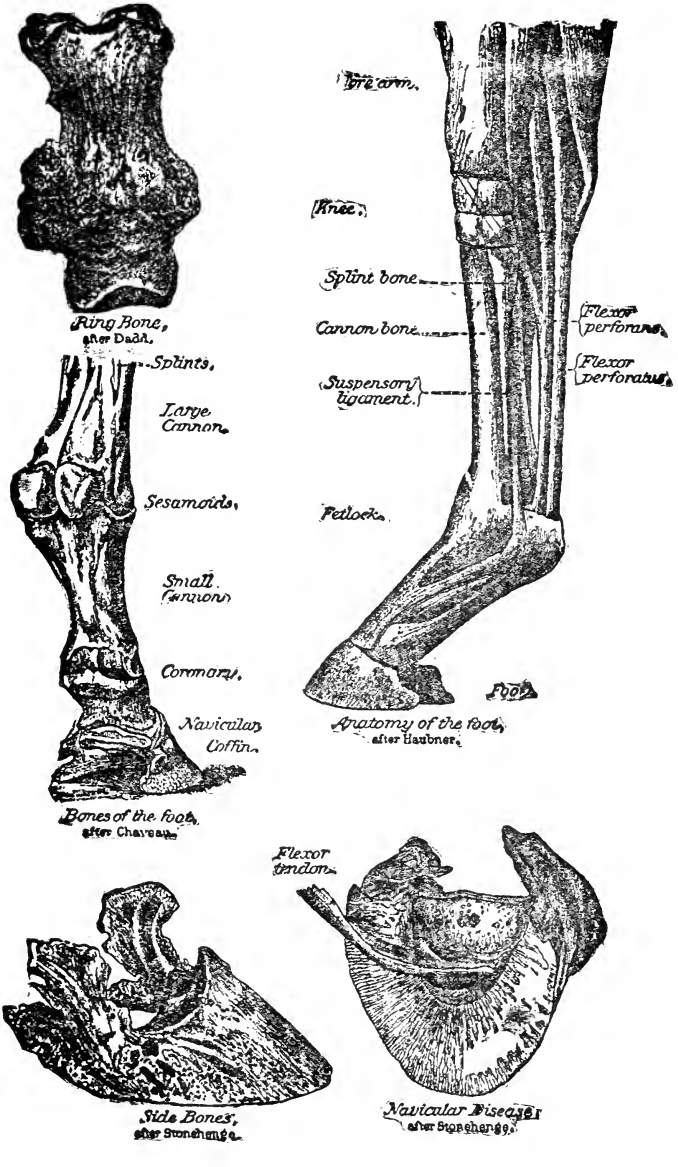




Skeleton of hoof showing cavity occupied by the foot.



FOUNDERED FEET.



RING BONE AND NAVICULAR DISEASE.

DISEASES OF THE HORSE.

Causes of Disease.

Scientific men give three names when they speak of the causes of disease—*exciting*, *predisposing*, and *proximate*. The first may justly be termed the originators of disease; by the second is meant those more easily acted upon by causes that a more healthy animal would resist altogether; and the third is almost the disease itself. Of the causes with which we are acquainted, not many of them are alike, and their effects, that is, the disease, just as diverse.

These causes are named in the following table:

1. Electric, and other conditions of the atmosphere.
2. Food and water.
3. Overwork.
4. Poisons—animal, vegetable, mineral and zumins, or ferments.
5. Malformations, or badly-formed parts.
6. Age and decay.
7. Changes of temperature.
8. Hereditary influence.
9. Mechanical.
10. Starvation.

That the writer may be more clearly understood in regard to these causes, examples will be given in the order above stated.

The first is looked upon as the cause of the many diseases which take on an epizootic form. The second, rusty straw, and musty hay and corn fed to animals with weak stomachs. Third, riding too far and too fast, overloading, etc. Fourth, animals drinking out of leaden troughs, where pieces of old iron may be lying in the bottom, and inoculation by the virus from a glandered horse, are illustrations of animal poisons, zumins, or ferments. (See Glanders.) Fifth, a horse with point of hock inclined forward, which is the originator of curb. Sixth, an old horse or cow, with no teeth to chew its feed. Seventh, taking an animal from a warm and comfortable stable and exposing it to a cold, north-eastern storm.

Eighth, a flat forehead, transmitted from parentage, thus preventing a full development of the brain where the optic nerve is given off from the brain, thus insuring blindness about the seventh or eighth year, and sometimes earlier. None need be told of the disposition of the coarse-bred Canadian horse to become affected with disease of the bones, mostly in the form of ring-bones (which see). Ninth, stone in the bladder, and calculi in the bowels. Tenth, besieged garrisons, fortresses, when crops have failed, and famine.

How to Observe Diseases.

We are sometimes asked how it is that we know so exactly what the disease is that this or that animal is affected with, as it cannot speak and narrate its ills and its aches. To this question we might repeat a common truism, "A shut mouth tells no lies;" therefore, nobody is deceived. *Nature* has but one set of *weights* and *measures*, and these only should be used. Thus, if a horse have a corn or bruised heel, he will be as sure to go lame as he would with an ordinary sprain. The difference is, that he not only stretches out the sore foot, but he elevates the heel from the ground, and will not set his foot flat to *please*, or it may be said to *deceive* any one. The uneasy eye, the anxious expression, and the sharp peculiar look, tell the tale of suffering, and bear testimony to a description so faithful and true, that every man should understand how to interpret them.

The Principles of Disease.

Congestion.—By this term is meant an undue flow of blood into a part, and remaining in it. The blood-vessels lose the power of contracting and emptying themselves, as when in health. Congestion is not accompanied with inflammation, as some suppose, and may exist without irritation. Irritation is only present when the blood passes more rapidly into a part than its vessels can carry it out, and inflammation only is present when more fluid is thrown into the vessels than they can get rid of.

Irritation.—This peculiar condition is the result of increased sensitiveness, or an exalted action, accompanied with quickened beating of the heart and pulse. When we apply the term to special cases, it will be better understood as irritation of the bowels pro-

ducing diarrhœa, of the bladder frequently passing off urine, of the eye causing an increased flow of tears, and of the throat giving rise to cough.

Inflammation differs from irritation, inasmuch as it is more painful. There are three varieties—*acute*, *sub-acute*, and *chronic*. Inflammation has also three terminations:

(1.) *Resolution;* that is, it gives way, or is relieved before any alteration has taken place in the part so inflamed.

(2.) *Suppuration*, or the formation of pus.

(3.) *Mortification*, or death of the part affected, and the subsequent death of the animal. Inflammation is characterized by four conditions, or phenomena, as they are called—pain, heat, redness, and swelling. Inflammation assumes different degrees of intensity, modified by the cause, and the part or organ affected. When it is situated in the windpipe (bronchitis, which see), lungs, or bowels, great uneasiness and disturbance are manifest. In a few hours this condition gives way to depression.

Depression.—Many diseases of an inflammatory type, when their course is run, leave the system in a state of depression, or a low condition of vitality. How necessary, then, that this should be properly understood when treating inflammatory diseases, as one pint of blood taken from a large horse would, under these circumstances, cost him his life! Rather anticipate the weakness by supporting and husbanding the strength as much as possible, so as to overcome disease.

There are *two* great divisions of diseased action, which it will be well for farmers, and others interested in the welfare of their animals, to know, and these are: First. The exalted, or as it is called *sthenic*, or commonly known by the term inflammation, and requires for treatment, *not* bleeding, but medicine having the power of overcoming the exalted condition, by controlling the fast beating of the heart and pulse. This is easily done by the powers of such agents as aconite or veratrum (which see), and without in any way impairing the strength and constitution of the animal. The second, or depressed condition of disease, and known as the *asthenic*, requiring a treatment opposite to the above variety, namely, iron, gentian, etc. (which see), to add to the strength of the animal, and quality of the blood. An improved diet, and in greater

quality, will, in many cases of depression, not only cure the disease, but remove the cause also.

Fever.

There are four stages observed in fever:—

(1.) Weakness, loss of appetite, and low spirits.

(2.) A shiver, or chill, uneasiness, flanks move quick, and short, nostrils more or less distended, one leg or ear hot, and the other cold.

(3.) After a time the coldness is succeeded by great heat and thirst, costiveness, urine scanty and high-colored, mouth hot and dry.

(4.) When the fever has lasted for a longer or shorter time, the skin becomes more moist, the bowels and kidneys act more freely; the pulse becomes more full, although not less frequent, and the mouth more moist.

When fever is accompanied with disease of the lungs, liver, or other organ of the body, or after an accident of any severity, it is then called *symptomatic* fever.

Fever is called *idiopathic*, when not accompanied by disease or accident. From the days of Galen to the present time, of the many theories advanced to explain its proximate cause, none seem to satisfy the philosophical student, and all belong to the unsolved problems in physiology.

Diseased Secretion.—A good example of what is here meant may be found in the discharges from the nose of animals affected with cold, influenza, and glanders. The salivary gland may secrete too much fluid, as horses eating second crop clover. We call this salivation.

Increased Secretion.—In health, serum is only supplied in sufficient quantity to keep the surfaces moist, the absorbent vessels preventing accumulations. In the cavities of joints this secretion is often too large, causing enlargements, of which a very good example may be seen in swellings of the hock-joint, called bog spavin, and also in thorough-pin.

The Pulse.

The pulse of the horse and the ox is felt on the inner angle of

the lower jaw, as being the most convenient place. The state of the pulse tells the condition of the heart, whether the disease is of an exalted or depressed character, or whether sickness is at all present. The pulse is more frequent in young than in old animals. In the full-grown and healthy horse it beats from thirty-two to thirty-eight in a minute; in the ox or cow, thirty-five to forty-two; in the sheep, seventy to seventy-five; and in the dog, from ninety to ninety-eight. In inflammation and fevers the frequency of the pulse is increased. In debility and depression it is slower, but sometimes quicker than natural. There are the quick pulse, the strong, the sharp, the regular, the intermittent, and many other varieties, both fanciful and real, which few persons can appreciate. The pulse of inflammation and fever numbers from seventy-five to eighty beats in the minute; and in great debility, as in the last stage of glanders, accompanied with tubercles of the lungs, the pulse will number one hundred beats per minute.

Breathing.

A good-sized, healthy horse will take one inspiration to three of the pulse beats. When the breathing is more frequent or slower, and when irregular, or difficult and laborious, there is then disease; although we sometimes see the breathing quickened and short, when no disease is present. Both the pulse and the breathing will be quickened by exposure to heat, as a stable up-stairs, and exposed to an August sun. By removing the animal to a stable not so situated, the breathing and the pulse will be greatly lessened. Hence the advantage of placing animals in a cool and airy place when they are unwell. It saves a great waste of their strength and vitality, thereby enabling them to throw off the effects of disease.

Treatment of Disease.

The antiphlogistic plan of treating disease was derived from a theory now entirely exploded, and almost forgotten. Repeated bleedings, blistering, physicking, and starving on low diet, are some of the measures entering into the general plan which has destroyed more life and property than all the wars, ancient or modern.

Bleeding, in domestic practice, is almost discarded, and in

veterinary practice it should never have been employed. And if this fact shall be the means of opening the eyes of those interested (and who is not?) in the health of the animals supplying us with meat, and the horse (a willing and a faithful help), to the injury done by bleeding in health or disease, the writer will have his reward. Avoid these measures, and substitute a rational and successful system of treating the diseases of your animals. Ascertain whether your horse is suffering from a disease of an exalted or inflammatory kind; substitute aconite, pure air, and *cold* water for bleeding, and in a few hours you will have no cause to regret the change. If the disease be of a depressed kind, accompanied with weakness and debility, give nux vomica, iron, and generous diet. If the disease be an eruptive fever, give sulphite of soda to purify the blood. In rheumatism, administer colchicum and carbonate of soda. In mange, apply the sulphuret of potassa to the skin, and thereby destroy the small insects which cause the trouble.

In hard swellings use the preparations of iodine, to cause their absorption. In lameness, allow absolute and entire rest, and apply hot or cold applications and slight irritants to the parts, to remove the products of the sprain. Ascertain the cause of disease, and having found it, have it removed, and the effects will cease. If the animal be costive from eating dry, concentrated feed, remove it, and give green feed or bran, but do not give physic. If diarrhœa be present, leave it, at least for a time, to itself, as it is nature's plan of getting rid of the offending matter. But, if it should continue, chalk and opium, as an astringent, are what is wanted. The reader cannot fail to see how simple, and his experience will demonstrate how successful these measures are in arresting and curing the disease of all our domestic animals.

How Diseases are Cured without Medicine.

Intelligent persons have no difficulty in recognizing in the constitutions of animals and men a power of self-restoration, which is capable of resisting the influence of disease. It is this power that heals wounds, unites broken bones, and supplies lost substances. Diseases are not unfrequently efforts in this direction, intended to stay the action of hurtful material when admitted into the system. When the eye, for instance, receives a particle of

sand or hay-seed, the weeping of the secretions of pus are remedial measures to rid it of the offending matter. Poisons are good examples of the manner in which animals will cure themselves. When poison is taken into the stomach, irritation of the bowels is set up, followed by purging, as an effort to get rid of the poison. Nature, however, is not always successful, and the animal may die from the violent action set up. Again, a sprain will be cured by this very power, provided absolute and entire rest be allowed to the sprained part without any interference from medicine or art. The remedial powers of nature often require assistance, as, for instance, in cases of debility, when the blood is becoming too watery. A few doses of iron, and in many cases a little extra food, will enable the sanative powers of the constitution to effect a complete cure. Often the removal of an animal from the sphere of exciting causes of disease, will cause the effect to cease, and the power of nature will cure the affection. Hence, many persons reflect upon the many instances when apparently severe cases of sickness were cured by some simple substance, and much credit given to a power it never possessed. Where the powers of nature are left to perform a cure, let the strength of the animal be maintained, because if that fail, where is the chance of recovery? Blood-letting and physicking are powerful and depressing agents; so much so, that when carried to any extent, few, if any animals, by the little power that may be left, will cure themselves. It is this knowledge that enables Homœopathists to continue practice; for if it were not for this power in the constitution in each and every animal, Homœopathists would have long since ceased to practise their peculiar art. If farmers and owners of horses and cattle will only cease to bleed, and pour nostrums down the throats of their stock, and learn to rely more upon the great curative that God has implanted in the constitution of all His creatures, as a power in protecting their lives when attacked by disease, it will surely be infinitely more profitable and pleasant to them. In curing disease, medicine and art should be directed to assist the powers of nature to overcome disease—nothing more.

Nature, Symptoms, Cause, and Treatment.

An alphabetical classification of disease is the only arrangement

adapted to popular instruction and domestic use. As some diseases have more than one common name, a few references are all that may be necessary to find the particular disease wanted. In every disease the treatment I have *first* recommended should be tried; and if it be not successful, the next in order will be taken. Also begin with the smallest dose, increasing, diminishing, or withdrawing it altogether, as the case seems to require. I do not think it necessary to quote authorities to substantiate what is said in regard to this or that medicine as a remedy, as the plans and remedies are those employed by the profession.

Abrasion signifies to tear off, and is applied to the skin when it has been rubbed or torn off, and to the lining membranes of the nose. The treatment will be found under that of bleeding wounds.

Abscess.—This is also called, by some persons, a beeling—a formation of matter or pus under the skin, as the result of inflammation, either acute or chronic. Sometimes abscess in bone is seen, also of the liver and the brain; and, indeed, no part or tissue of an animal is exempt from it.

Symptoms.—Pain, heat and swelling; a projection or prominence on the swelling from which the hair falls off, disclosing a yellow, white and soft part upon its apex. In a common abscess of this kind, it will only be necessary to hasten the formation of the pus by applying poultices of flaxseed or some other soft substance to the part, and when the point is soft and evidently contains fluid, make an opening on its lowest dependent point with a sharp knife, so that the discharge will flow out of itself, and then apply:

Rain Water, ...	1 ounce.
Chloride of Zinc, ...	6 grains.

Mix and apply to the wound twice a day.

It is not advisable to open an abscess too soon, or before the pus has properly formed. (See articles on Strangles and Fistula.)

Acari.—(See Mange.)

Accidents.—When a horse falls whilst drawing a vehicle—

1. Jump down and hold the animal's head, to prevent his dashing it about to his own injury.

2. Loosen the check-rein (if you are so foolish as to use one) and the parts of the harness which fasten on the vehicle.

3. Back the carriage, so as to get the shafts and traces clear.

4. Steady and support the horse's head, and excite him, with hand and voice, to rise.

5. When you have got him up, pat and encourage the poor animal, and see if he is wounded, or otherwise injured.

6. Let him stand still a short time to recover himself, and then proceed gently and with greater caution than before. (See Sprains, Bruises, Bleeding, and Wounds.)

Aconite.—(See Medicines.)

Alteratives.—This term is not very scientific, but it is in very general use, and easily explains its own meaning, though th *modus operandi* of the drugs employed to carry it out is not so clear. The object is to replace unhealthy action by a healthy one, without resorting to any of the distinctly-defined remedies, such as tonics, stomachics, etc. As a general rule, this class of remedies produce their effect by acting slowly but steadily on the depuratory organs, as the liver, kidneys, and skin. The following may be found useful for general use:

Black sulphuret of antimony, . . .	2 to 4 drachms.
Sulphur, ...	2 drachms.
Nitre, ...	2 drachms.

To be given mixed in cut feed at night only.

Amaurosis.—Glass eye. (See Eye Diseases.)

Anæmia.—Deficient or bad blood.

Anchylosis.—(See Spavin and Open Joints.)

Aneurism.—A pulsating tumor, produced by the rupture of the inner coats of the vessel, and the blood getting between it and the outer coat. They manifest themselves in many parts of the body. An expert surgeon is only capable of remedying it, as great danger of bleeding to death would result from opening a tumor of this kind.

Apoplexy.—*Symptoms.* The animal falling suddenly, loss of feeling and the power of motion, and breathing deep and slow. In most cases the horse gets up again, shakes himself, and proceeds on his journey almost as if nothing had happened, but it will shortly be seen that the animal is not so lively as formerly, and that it will

afterwards be unsafe to use him, especially for a family carriage, as in a fit of this kind the horse may become entirely unmanageable, and can only be controlled by a power stronger than his own. Horses subject to disease of this kind will, at times, be observed to look sleepy, with a slight knuckling of the hind pastern-joints, accompanied with stiffness of the hind quarters and lopping of the ears. All these symptoms are seen in brain diseases, as Staggers, Megrims, and Epilepsy. (Which see.)

Causes. Breaking of a blood-vessel, effusion or water on the brain, producing pressure, too small a collar on a thick-necked horse, interfering with a free circulation of the blood to and from the head, effects of the sun—sunstroke. (Coup-de-soleil.)

In severe cases of Apoplexy, many never had the use of their legs again, by their remaining palsied. (See Palsy.)

Treatment. Apply chopped ice to the head, in bags, and secured by proper fixings. Keep up a free circulation in the legs by rubbing and woollen bandages, or warm water cloths, and renewed every half-hour. Then apply a small blister of

Spanish Fly	½ drachm.
Hog's Lard	2 drachms.

Mix them well together, and rub the salve well in by the hand on the part just behind the ears.

Do not bleed, as that measure will only insure effusion, and, as in the brain, ultimately cause death or dumbness. (Which see.)

If there be much exaltation or excitement, give fifteen drops of the tincture of aconite root every four hours, till five or six doses are taken. If the contrary condition be present, that is, depression, give from ten to fifteen drops of the tincture of nux vomica four times a day, for a few days, or a week, if necessary. These medicines are best given in cold water, when the animal will drink it; if not, mix with a cup of water, and drench out of a stout-necked bottle. Feed the horse generously and well.

Aphtha.—(See Mouth Diseases.)

Atrophy.—Wasting and shrinking of a part of the muscle, as is seen in *sweenie* of the shoulder; consumption and disease of the mesentery, and also palsy or paralysis of the hind legs, from which the muscles of the hip will be seen to have fallen away.

Causes. The parts deprived of their proper use, action or function. A long-continued corn on the foot of a horse, depriving him of the proper use of that limb, will cause shrinking of the *subscapularis* muscle of the shoulder.

Treatment. Removal of the cause, and restoring the functions of the parts to their proper condition. In case of many joint diseases, it will be necessary to have the horse walked before he is cured, to prevent too much wasting of the parts from long standing and want of use.

Back Sinuses.—(See Sprain.)

Baldness.—(See Skin Diseases.)

Belly-ache.—(See Colic.)

Big Head.—(See Osteoporosis.)

Bishoping.—Bishoping is the name of an operation performed upon the front or nipper teeth of horses that are more than eight years old, for the purpose of imitating the mark of the teeth of young horses, in order to deceive those persons who are supposed to be poor judges in the age of horses. It can rarely deceive any person of ordinary intelligence. The general appearance of the horse will soon tell if he be an old or young animal.

Bite of Mad Dog.—When any reasonable suspicion exists that the dog is mad, have the parts completely washed out with cold water, if possible forced with a syringe or hydrant, so as the water will find its way to the bottom of the wound, and wash out any virus that may have lodged there.

If the bite be upon the leg of man, horse or other animal, or man's arm or finger, a *Tourniquet* or soft rope or cord should be tied tightly around the leg *above* the bite, till other measures are used to have the bite purified. After the cord is properly applied, have the parts washed out; next either cut a portion of the flesh from the top, sides and bottom of the wound, or apply caustic to the parts. The nitrate of silver is possibly the best for this purpose. A few drops of nitric, hydrochloric or sulphuric acid may be dropped into the wound, and by the burning properties of these articles the destructive character of the poison will be destroyed.

After these measures have been satisfactorily performed, the wounds should be treated as for common wounds with simple ointment (see Prescriptions and Medicines). The bite of other

rabid or poisonous animals should be treated in the same manner. Persons have been bold enough to have allowed themselves to be bitten by mad dogs no less than seven times, and then applying the nitrate of silver as a caustic to the bites, never became affected with the canine disease. However, too much dependence should not be placed in any one measure as a protection in such cases. The great protection is, do not allow yourself to be bitten at all, if it can be avoided.

Bites from a healthy dog will never produce madness, even although the animal go mad in a year or two afterward, so keep your mind easy on that point.

Bladder Diseases.—1. INFLAMMATION.—This condition of disease is sometimes met with, but is rare in horses.

Causes. Irritating substances or foreign bodies in the bladder.

Symptoms. Constant desire to make water, pain, straddling or walking wide with the hind legs, great tenderness under the belly.

Treatment. Inject a little warm oil into the bladder. This can only be done by an expert and with a proper instrument. Give 25 drops of the tincture of aconite root every four hours, till six doses are given, to keep down pain. Allow flaxseed tea to drink, or drench the horse with it, which has an excellent soothing effect. Give plenty of cold water to drink.

2. CALCULI.—This variety of stone is sometimes found in the bladder and kidneys of horses. This may be said to be the gravel of the horse, although not so common as in man, but is equally troublesome and requires for its cure a formidable operation called *Lithotomy*, an operation of no great magnitude to an expert surgeon, but can scarcely be undertaken by an unprofessional person, even though a description of it were given.

Bleeding.—1. BLEEDING.—An operation for the drawing of blood from the body, either locally or generally. As before stated, it is almost entirely discarded from domestic practice, and should never be used in the treatment of diseases of animals, however much the adherent of an exploded and an erroneous system may doubt it. Medicines will be described in this book that will not only insure greater success in saving a very much greater percentage of sick animals, and with less trouble in a much shorter time,

and without in any way impairing the sanative powers of the animal's constitution.

2. Bleeding from Wounds.—If the wound be a simple one, and not on the inside of a leg where the large blood vessels are situated, all that will be necessary to stop it will be a small piece of cotton or soft cloth placed in and over the wound, and secure it for a few hours by a broad bandage, not too tightly applied over it, or, if preferred, touch the mouth of the bleeding vessel with a piece of iron previously immersed in boiling water or in the fire itself. The surgeon's plan would be to get hold of the mouth of the vein or artery with a pair of artery forceps or small tongs, to hold it so that he can tie a piece of saddler's silk around it. If the wound be on the inside of the hind or fore leg, and the blood of a scarlet color (see Blood), place pads of cloth and bandage pretty tightly over it, and run for a good surgeon, and tell him what the trouble is, so that he will go properly prepared for his work.

3. Bleeding from the Air Passages and Lungs.—Observe the color of the blood discharged from the nose or mouth, as the veins of the lungs convey blood similar to the arterial blood of the other parts of the body.

Causes. The laying bare, and the rupture of small vessels, and the structure of the lungs, breaking down as in consumption, and some cases of glanders and coryza.

Treatment. Support the strength by the mineral acids (see Acids), and small doses of aconite to lessen arterial circulation. Bear in mind in cases where the structure of the lungs is falling to pieces, no power or art can arrest it. Hence, the incurability of consumption.

4. Bleeding from the Skin.—This disease is sometimes called *purpura.*

Symptoms. After general uneasiness, some pain, fever, and swelling of the legs and other parts of the body; tumors, varying from the size of a cranberry to that of a pigeon's egg, often running together, forming large patches from which blood is oozed out in great quantities, giving rise to much debility. The contagious typhus or rinderpest of cattle bears many resemblances to this disease of the horse.

Treatment. Feed the animal on the best food that can be procured, and put forty drops of commercial sulphuric acid in half a bucket of cold water three to four times in the day. Then get two ounces each of the sulphate of copper and gentian root in powder, and divide into eight powders, and give one night and morning in the feed.

Apply to the bleeding surface and sores a liniment composed as follows: Olive oil, three ounces; creosote, one ounce; mix and use once in the twenty-four hours. (See Mouth Diseases.)

Bloody Urine.—(See Kidney Diseases.)

Blood.—Blood is observed to be of *two* colors, namely, red, or almost of a bright scarlet. When blood of this color is issuing from wounds in jets or jerks, it is considered more dangerous than if it were of a dark-red, or venous blood. The first is direct from the heart itself and the other is from a more remote and less dangerous part.

It may be interesting to know that red globules are more plentiful in blooded or well-bred horses than in horses of a coarser kind, which accounts for a curious fact observed in the difference of vitality. Thus, a blooded horse bears up under diseased action, and is cured, whilst a western or common horse will die under the same disease.

The fluid portion of blood is called *liquor sanguinis*, in which the red globules or spheres float. When blood is drawn from the body, it divides into two parts: the solid is called *clot*, and the other is the *serum*. This serum was once relied upon, and is still by the ignorant, as showing the existence of inflammation. It is by the blood that the strength, wear, and tear of the system is kept up. The heart is the organ by which the blood is forced through the body. If the blood be thin and watery, it is called *hydronemia*. (See Dropsy.) If pus be in the blood, it is then called *pyemia*. (See Glanders.)

Boils.—(See Saddle or Harness Galls.)

Bots.—(See Worms.)

Bowels, Disease of.—(See Costiveness, Diarrhœa, and Dysentery.

1. Inflammation of the Bowels.—*Symptoms.* Acute pain in the belly, and continuous, getting no intervals of rest from the

pain. Rolling, pawing, and shifting about, sweating, and breathing fast, with great fever, exaltation, and excitement. A fearful disease. Happily not so frequent as formerly.

Can only be mistaken for colic (which see). In colic there are times of ease and pain, but never in this disease.

Causes. Exposure to cold, drinking cold water in great quantities when hot, calculi, or hair balls in the bowels, costiveness, diarrhœa, and as a sequel to colic, lead and other poisons which see).

Treatment. The first thing to be done is to lessen or destroy pain. Give a large dose of the tincture of aconite root, say thirty drops, to be repeated in two hours. Apply blankets wrung out of boiling water to the belly, and renew them in about twenty minutes. Give injections of *warm* not *hot* water, soap, and a handful of table salt every half hour. Continue the treatment while there is enough strength remaining.

Bleeding will only insure and hasten death, and purgatives are too slow to act—the horse is either dead, or will be before any response can be had from them.

Brain Diseases.—The brain and its coverings, or membranes, are subject to inflammations of every degree. (See Apoplexy and Staggers.)

Breaking Down.—This accident means or consists in rupture of the tendons and ligaments, and occurs at once when the horse is at full speed.

Symptoms. The horse stops suddenly, or perhaps stumbles and falls; gets up but stands on his fetlocks, the toe of the foot turned up, and the sole of the foot, as it were, looking at you.

Treatment. If the fetlock comes entirely to the ground, not much can be done; and when it does not, contraction of the leg takes place, and requires division of the tendon. (See Tendeotomy.)

Breathing Short.—This is a symptom of irritation, inflammation, debility, weakness, oppressions of every kind, and fever (which see).

Breeze Flies.—This is the fly supposed, but erroneously, to be the one that deposits the ova or eggs, which generate bots in horses. (See Worms.)

Brittle Feet.—(See Foot Diseases.)

Bronchi.—This term means the windpipe, and communicates

and carries the atmosphere to and from the lungs. It is the seat of disease, and is affected more or less in all cases of colds and inflammations, whether of the lungs or the membranes—the pleura.

Bronchitis.—Inflammation of the Air Passages or the Parts Enumerated Above.—This is a very common disease among horses, and is confounded by most horse doctors with inflammation of the lungs, distempers, and colds; whereas, it is distinguished from inflammation of the lungs by its seat, and from the others by as great a dissimilarity.

Bronchitis occurs in various degrees of intensity, and should at least be described under two heads, notwithstanding the one distinction may run, as it does sometimes, into the other.

1. Acute Bronchitis.—*Symptoms.* Ushered in by a chill, fever, harsh or painful cough, loss of appetite, heaving at the flanks, mouth hot and dry. In a day or so, a discharge of pus or matter will be observed from one or both nostrils.

If bleeding, or other severe measures be used, the horse will assuredly die, not so much from the disease, but from maltreatment. Better, in a disease of this kind, let nature have her way, and give the horse a chance for his life; for in the other case, he has absolutely none whatever.

Treatment. First, the horse should be treated as for fever. Place the horse in an open or airy place, embraced by the word "comfortable." Obviously it would not be comfortable to place a sick horse in an open place, with the thermometer below zero. In July or August it will not be necessary to burden the animal with blankets.

Give him from fifteen to twenty drops of the tincture of aconite root every four hours, till six doses are taken. This will relieve the fever, breathing, and the hot and dry mouth. Give plenty of *cold* water to drink, for pain and fever require plenty of fluid, as all the secretions are dried up. Let the animal have a little grass, if it can be got; this will relax the bowels, and cool the stomach. On the second day, the following medicines may be given, that is, if they be necessary: Powdered gentian root, two ounces; powdered nux vomica, one ounce. Mix, and divide into six powders, and give one powder morning, noon and night. These medicines will prevent debility and depression, and the pouring out of fluid

or serum into the legs, sheath, belly and breast. After the fever has been removed, allow good feed, and a fair quantity of it. Such treatment will not only cure the horse in five or six days, but the horse is nothing the worse, beyond the loss of a few days' work.

2. Chronic Bronchitis.—*Symptoms.* A confirmed cough, more or less severe, and a discharge from the nose. The cough worse in the morning, and after drinking water.

Causes. Maltreatment of acute cases of bronchitis, and where the attack has been prolonged beyond a reasonable time, causing ulceration or thickening of the windpipe.

Treatment. Give extract of belladonna, half drachm, powdered digitalis, half drachm, three times in the day, morning, noon and night, for a few days. If no good seems to have been done, a different plan will have to be adopted, namely: feed the animal well, and give sulphate of iron, two drachms in powder; gentian root, two drachms in powder twice in the day for two weeks. By this time the absorbent system will be pretty powerful. Then apply the following salve or ointment, well rubbed in down the course of the windpipe, once in the week. Lard, one ounce; red iodide of mercury, one drachm. Mix. This will cause whatever thickening may exist to be absorbed or taken up. Lard or oil will have to be applied once per day on the place where the ointment was applied, to prevent the skin from cracking. If the animal be debilitated, give occasionally sixty drops of commercial sulphuric acid in half a bucket of cold water to drink.

Bronchocele.—Pronounced "Bronch-*seal*," is an enlargement of the thyroid gland, and is situated on and in front of the windpipe, about three inches from the lower jaw. In horses it is only an eye-sore or blemish.

Causes. In the horse it is unknown, nor is it determined what office or use the thyroid gland performs in man or animals.

Treatment. Apply with friction by the hand once a week, bin-iodide of mercury, one drachm; hog's lard, one ounce. Mix, and make an ointment. Rub in a piece about the size of a hickory-nut over and around the enlargement.

Broken Knees.—When a horse stumbles and falls upon his knees, and takes the hair and some of the skin off, this is called broken knees.

Treatment. Wash and cleanse the parts from sand and dirt, and if the skin is ragged and torn, clip off with a good pair of scissors. After this is done, ascertain if there is any discharge from the sore of an oily substance, and if so get a smooth piece of iron, immerse it for ten minutes in boiling water, and apply it to the edges of the wound, so as to cause the parts to swell, and prevent the escape of the joint oil; for if this be allowed to escape, the ends of the bones will come against one another. Irritation and inflammation will be set up, and either destroy the life of the horse, or make an anchylosed or stiff joint. This is an important point to be observed, and that very early in all cases of broken knees or open joints wherever situated. After the hot iron has been applied, use the following wash twice in a day:—Sulphate of zinc, half an ounce; rain, or soft water, eight ounces. Mix. This will heal the sore, and prevent proud flesh from growing. This wash will answer for the more simple wound of the knee, and where there is no open joint. Do not apply bandages, as they will cause the whole leg to inflame and swell. Sometimes a kind of pouch will be formed by the lower edge of the wound, holding whatever pus or other fluid may escape. This pouch should be opened at its lowest bottom, so as to let the fluids out, and to prevent a bulge or permanent swelling remaining after the knee has otherwise healed. By attention to this, very little or no blemish or scar will be left to tell the tale of a stumbling horse, or a bad horseman.

Bruises of the Sole.—(See Foot Diseases.)

Burns and Scalds.—Injuries inflicted upon some parts of the body by the application of solid heat, is called burns; by fluid heat, scalds.

Treatment. In horses the treatment is chiefly local; for in cases of fire in large cities, the generation of steam is sometimes so great, that it is inhaled by animals in the burning building: this is termed scalding. Not much can be done, nor is there much hope of a cure in cases of this kind. The utmost that can be done is to give plenty of cold water to drink, and keep down pain by means of aconite (which see).

For burns the best application will be, one pint of linseed oil, and half a pint of lime water, stirred together, or rather whipped

(as cooks usually do eggs), till the mixture is like thick cream. This is to be applied to the burned places, spread on cotton or linen rags, for a few days: then the sores are to be dressed with green ointment. (See Ointments.)

Bursa Mucosa Enlarged.—(See Spavin and Wind Galls.)

Calculi.—Stone in the bladder.

Cancer.—This is a hard tumor, malignant in its character, at first small in size, but rapidly increases, and becomes ulcerated. The horse is not affected with so many varieties of cancerous growth as the ox and the dog, and even man himself. Melanotic cancer is most commonly seen in gray horses or those that turn white with age. A small hard tumor is usually seen under the root of the tail and about the anus.

When tumors of this kind are seen on gray horses, it may reasonably be expected that growths of the same character will be found inside, on the spleen, stomach, and liver. Horses so affected may work well for years, and may not for a month. The tumors increase in size; when cut into, they discharge a fluid as black as the ink of the cuttle-fish.

Causes. As this disease is not seen in young gray horses until they have almost turned white, it may be inferred that the cause results from the loss or want of the usual pigment, or coloring matter, which gives color to the hair, thus depriving the animal of some protection from the air or sun. I think, however, that the *true* cause will be found to be, not in the *loss* of the coloring matter, but of its *transfer* from the skin and hair to the blood. Hence the inky color of the contents of the tumors. This opinion, which is my own, is still further corroborated by the fact that if the pus be taken from an abscess and injected into the blood of a healthy animal, carbuncles containing pus will soon manifest themselves.

Treatment. Incurable; but when one of these tumors breaks, treat it as an ordinary abscess (which see).

Canine Rabies.—(See Hydrophobia.)

Capped Elbow.—This is an enlargement on the point of the elbow, just behind the shoulder, and on the side of the chest; sometimes it is in the form of a simple abscess (which see). But

the usual form is that of an encysted tumor, or a fluid contained within a cyst of fleshy walls, which do not suppurate.

Cause. The horse, when lying, rests the point of the elbow upon the heels of his front shoe. It is a symptom of disease of the leg, preventing the animal from properly flexing or bending the leg proper upon its thigh or arm. Hence the elbow rests upon the foot.

Prevention. Remove whatever disease may be in the leg, and place a pad of leather, or of coarse, heavy cloth, over the back part of the foot. Pads are made by harness makers.

Treatment. Make an incision with a sharp knife through the skin, over the centre of the swelling, and carefully dissect the cyst from its attachments. This can be done with the fingers and a blunt piece of wood, flattened at its points like a butter knife, and no sharper. If the operator be timid, and think he cannot cut the cyst out, open it, and let out the matter, and inject, once per day, a little tincture of iodine, to kill the walls of the cyst, so that it will not fill again. (See Medicines.) A knife is only wanted to cut the skin. After the tumor is taken out, treat the part as a simple wound, by keeping it clean, and applying a solution of zinc, or blue stone.

Chapped Hock.—This is a soft swelling on the point of the hock-joint.

Causes. Kicking in the stable or in harness, lying upon stone-paved stalls, and from being kicked by any other horse.

Treatment. Apply cold water cloths to the part for a few days, taking them off at night. After the heat and tenderness have subsided, apply, with rubbing, once every fifth day, for three times, if it be necessary, an ointment composed of one drachm of iodide of mercury, and hog's lard, one ounce. Mix.

Carditis.—This is applied to disease of the heart. Heart disease is also known as the Thumps. *Incurable.* (See Heart Disease.)

Caries.—This term means an ulceration of the bone. The most frequent form of caries is seen on the lower jaw-bone; the teeth are next affected. If the upper teeth be ulcerated to any extent, a fetid (stinking) discharge will run from the nostril upon the side on which the diseased teeth are situated, which has been re-

peatedly mistaken for glanders by "horse doctors." If caries of the bones of the head exist, the swelling of the head will be enormous—Big-Head, or OSTEOPOROSIS—and not *Osteosarcoma*, as it has been called.

Cause. A disposition in the system to appropriate to the bones more calcareous or earthy matter than is required.

Treatment. If caries be confined to the teeth, have them taken out. When confined to the bones of the head, it is incurable. The animal will die of hunger, as he is unable to use his tongue and jaws, or gather and chew his feed. Happily, it is not a common disease.

Castration.—This is an operation for the purpose of depriving the horse-colt of his entirety by the removal of the testes. It is a simple and safe operation. Any person having once seen it done, can do it also, if he have the resolution to do so. It has been recently demonstrated that castration can be performed on aged horses with as much safety as on those in colthood. This is attributed to the mode or manner of operation, namely, by an instrument called the *Ecraseur.*

No clamps, no firing nor twitching, nor any trouble afterward. The instrument is manufactured especially for this purpose, by surgical instrument makers.

Cataract.—(See Eye Diseases.)

Catarrh.—(See Cold.)

Cautery.—This term is applied to the operation of searing a part with a red-hot iron. Happily, this cruel, and in many instances unnecessary operation, is becoming among the things that were. It used to be applied to sprains, ring-bones, and spavins. Since the discovery of the preparations of iodine, and their absorbent properties, the iron is little used.

Cerebro-Spinal Meningitis.—(See Typhosus.)

Chest Diseases.—The diseases of the chest are many and important. In it are the heart, lungs, and great blood vessels. The diseases of these organs will be found under Inflammation of the lungs, or Lung Fever, Pleurisy, Coughs, Bronchitis, and Glanders.

Chest Founder.—(See Founder.)

Chilblains.—(See Frost-Bites.)

Chill.—This term means a shiver, as if the horse were cold.

This is the way many diseases and fevers are ushered in. If the chill be checked soon, it will stop, in many cases, the disease that was forming. For this purpose, give twenty drops of the tincture of aconite root in a wine-glassful of water, and pour down the throat, out of a short-necked bottle; cover the body with a blanket, and rub the legs to bring the circulation to the surface of the body, and all will be well.

Choking.—Choking very rarely occurs in horses; very frequently in cattle. If choking should occur in the horse, there is little chance or hope of saving his life, if he be a spirited animal, and the substance be high in the gullet. In a very extensive practice, embracing many years, I have never seen a case of choking in the horse, except on a few occasions, and then it was only a ball of aloes sticking in the throat. If a ball of any thickness stick in its passage to the stomach, and it have passed down some distance, it is called *low* choke, and is not so dangerous, as if it stick in the entrance to the gullet—*high* choke.

Treatment. In low choke press down with the hand over the substance in the gullet, and try to move it. Do this not too strongly, but continue it for a time. If unsuccessful, one pint of fish, sweet, or linseed oil, melted lard, or syrup of any kind, will be apt to move the substance on its way down. If these should fail, after a good trial, then have the gullet opened right over the substance, and take it out, and put in one, two, or three stitches, with strong saddlers' silk. Make the stitches *separately* from each other; for if this be not done, and one break, the others will also become loose.

In high choke, the irritation and excitement are great, which prevent much being done to relieve the animal. Try the oil, and see what can be done in that way. The treatment is purely mechanical, so use ingenuity to overcome the difficulty.

Chorea.—This is a rare disease in the horse, but common in dogs. It accompanies cases of madness in all animals, and depends upon nervous excitement, which is seen in the constant twitching of the muscles of the body. It is clearly sympathetic in its character.

Treatment. Removal of the cause, whatever that may be.

Cold.—*Symptoms.* Cough slight, fever, and discharge more or

less from one or both nostrils, sometimes of a thin, watery material, or a thick, creamy pus. The lining membrane of the nose is red and inflamed. Cold sometimes even extends into the throat and lungs, giving rise to quickened breathing and uneasiness. When it extends to the stomach, it is called by the French *gastritis mucosa.* When it spreads to the chest, it is called bronchitis (which see). No disease is more common than cold among young horses; but, unfortunately, it rarely runs its course as such. Cold assumes one or more of the forms just mentioned.

Cause. Exposure to cold and stormy weather.

Treatment. In Germany, it is said, that a cold, if let alone, will get well in a fortnight, and if treated by a skilful doctor, he will cure it in fourteen days. However, give the animal a few doses of aconite (see Medicines), to remove the fever, and, if possible, to prevent complications, or its further spread to the neighboring parts. If the appetite keep good, nothing more need be done; but, on the contrary, if the breathing quicken, and the appetite be poor, and debility be setting in, tonics and stimulants will be necessary. Get the following medicine, and give one powder, morning, noon, and night, mixed with a little cold water, and drench the horse with it: Take powdered gentian root, powdered pimenta berries, powdered carbonate of ammonia, of each two ounces. Mix, and divide into twelve powders. When the appetite improves, give good feed, but not by any means in sufficient quantity to bring on digestion. Give green feed, if it can be had. This is a most simple and successful plan of treating common cold.

Cold Lotions.—These are now called refrigerant lotions. Ice-water makes a good and economical refrigerant, when applied to a sprain. (See Prescriptions and Medicines.)

Colic.—(1.) Spasmodic Colic.—*Symptoms.* All at once the horse that a few moments ago was well, apparently, shakes his head—leaves his feed, looks round at his flank, mostly at the right side, as if pointing out the seat of the disease, scrapes the ground with his front foot, and almost strikes his belly with one of the hind ones. The spasm continuing, the horse breaks out into a sweat, heaving at the flanks; great excitement, kicking and rolling; intervals of ease from pain.

Causes. Drinking cold water when heated, or colder water than

commonly used, as a city horse is used to drinking water which is warmer in summer, and colder in winter, than water taken from a pump; washing the belly with cold water; driving horses into a pond of cold water.

Treatment. Give something to heat the stomach and bowels. Try a bottle of warm ale or porter, adding a little whiskey, or a teaspoonful of ground ginger to it. If relief be not obtained in half an hour give a drench, composed of tincture of aconite root, twenty-five drops; spirit of turpentine, one ounce; one bottle of cold ale or porter. If necessary, give injections of warm water (not hot), soap, and a handful of table salt. Occasionally *walk* the horse about, to excite the bowels to action.

(2.) Stercoral Colic.—*Symptoms.* Similar to the above variety, but continues longer, and is not quite so severe or painful.

Causes. Impaction or constipation of the bowels.

Treatment. Powdered aloes, one ounce; tincture of aconite root, twenty-five drops; chloroform, half an ounce. Mix in a bottle of ale or porter, and give in a drench out of a horn, or stout bottle. The aconite will have to be given every four hours, till the pain has given way. Encourage the operation of the aloes by injections every hour.

(3.) Flatulent Colic.—*Symptoms.* Pain is considerable at first, which in a few hours gives way to sleepiness (see Coma). This is caused by distension of the bowels with gas, commonly called wind, thereby paralyzing the parvagus and nerve centres, and ultimately the brain itself. This variety of colic is readily distinguished from the others by the swelling of the belly, particularly at the flanks, called tympanitis, or drum-belly.

Causes. Indigestion of food in the stomach; fermentation is set up, and there is evolution (giving forth) of carbonic acid gas. This gas is not liberated per rectum from the body as speedily as generated. The horse and cow cannot belch or eruct wind from their stomachs as man and the dog can; hence the frequency of tympanitis in horses and cows.

Treatment. Try injections first, as in many cases I have cured this variety by this means alone. If gas or wind come away with the injection, the case will soon end well. When no benefit is derived from the injections, give, in a little cold water, aloes in pow-

der, one ounce; sulphuric ether, one ounce; tincture of opium, two ounces. If these measures fail in giving ease from pain, pour two ounces of chloroform on a small moist sponge, and hold it to the nostrils, not too closely, but admit a portion of air with the fumes of the chloroform (see Medicines). The sponge may be placed in a towel, and the ends carried up around the nose of the horse, to save waste; or place the sponge in the bottom of a nose-bag, and put it on the head, but not too close upon the nose.

Last Remedy. It must be confessed that the longer this disease is unrelieved, the more remote is the chance of recovery, as the bowel sometimes contracts upon itself, or nearly closes altogether. To overcome this condition an operation is recommended, which I do not say will be a success, nor yet a failure. When it failed in my hands, it was not because the gas was not let out of the bowels, but because the blood had become so disintegrated, and the nervous centres so paralyzed that the sanative powers of the constitution had received too great a shock to ever rally again.

The Operation. Procure an instrument (See Instruments), called a trocar. If this be not at hand, sharpen a breakfast knife, and measure an equal distance from the haunch bone and the short rib, and not too high upon the back; force the knife into the distended bowel, and turn the knife in the wound thus made, and hold it there until all the imprisoned gas has escaped; and as the gas sometimes still accumulates, keep the knife or instrument in the wound, if it be for half a day. When the knife or instrument is taken out, place a piece of sticking plaster over the wound. (See Medicines.)

Stones, or hair calculi, are often found, after death, in the bowels of horses subject to colic. I have seen six taken from one mare that I had under treatment. Remember, the great principle in the treatment of colic, in all its forms, is to relieve pain. This also holds good in most diseases of horses. The doctor, if he fail to allay pain, cannot cure the disease.

Coma.—A horse is said to be in a comatose state when in an apoplectic fit, in sleepy staggers, and when dying from spasmodic colic (which see).

Congestion of the Lungs.—(See Lung Diseases.)

Constipation.—A confined condition of the bowels accompa-

nying fever, liver and lung diseases. Horses habitually costive should be supplied with soft feed and grass in season. Costiveness, as a concomitant of fever, etc., should in all cases be let alone, as it is a provision of nature to protect herself from exhaustion.

Consumption.—*Causes.* Repeated attacks of influenza, lung fever, or bronchitis, or any of these diseases treated by bleeding, and other reducing remedies or agents. Consumption in the horse runs its course in from one to two weeks.

Nature of Consumption.—A wasting, or breaking down of the structure of the lungs. The tuberculous form of consumption I have never seen in the horse. Tubercles are seen in bad cases of glanders (which see). These tubercles suppurate, and discharge pus. This pus is absorbed and taken into the blood, and sets up a ferment, or *leaven*, as the Scriptures call it. This is the great trouble in consumption in man, and glanders in the horse. Why authors have not called this tuberculous disease in horses, consumption, I do not know, except it be, and I am inclined to believe it is, from an entire ignorance of its true pathology or character.

Treatment. Incurable. To prolong the life, beef soup, iron, gentian, tonics and stimulants, are indicated. In the tuberculous form, sulphite of soda should be given to arrest the ferment, and keep the blood clear of impurities, in addition to the remedies to support the strength. (See Medicines.) *Decay, putrefaction, fermentation*, are true and scientific expressions, with no vague meaning. Such, then, are the conditions embraced in the word *consumption*, whether in men or animals.

Contagion.—This term is applied to something (as the *virus* of Glanders), coming in contact with the body of an animal in health, producing a similar disease to that existing in the animal from which it came. In a word, it is a specific poison. Few diseases of animals are considered contagious. The following diseases are, however, considered of that character:—Glanders, in horses; contagious typhus and small pox, in cattle and sheep. Although many animals may be taken sick one after another, this is no proof that the disease is contagious; for it must be remembered that a number of animals, all situated and cared for in the same

way, are certainly subjected to the same exciting causes that produced the disease in the first animal affected. Those that escaped the disease were not predisposed to take it; hence their exemption from its effects.

Prevention. Separate the sick from the well. All buckets, or other materials, that were in contact with the sick, must be thoroughly cleansed and purified. (See Disinfectants.)

Contraction.—(See Foot Diseases.)

Convalescence.—A term applied to the time which elapses between the controlling of acute disease, and the restoration of the patient to perfect health.

Corns.—(See Foot Diseases.)

Coryza Gangrenosa.—This name is applied to an ulcerated condition of the membrane of the nose supervening in a case of cold. It is evidence of general debility, and disintegration or deterioration of the membrane.

Corrosive Sublimate.—(See Medicines and Poisons.)

Cough.—A *symptom* of disease of the respiratory organs, as tubercles of the lungs, thickening of the lining membranes of the windpipe, and enlargement of the glands of the neck. I have seen cough from indigestion in a few cases, but this is rare in horses.

Cough, Chronic.—*Causes.*—Debility, or softening of the par vagus nerves; heaves, or broken wind (which see), are some of the causes which produce acute cough.

Treatment. Removal of whatever is the cause (*causa sublata tulitur effectus*).

Counter-irritants.—An external application, which, when applied, causes an irritation or inflammation counter or opposite to that which exists inside.

Cow Hock.—This name is applied to a condition or malformation of those hocks that incline forward, thus forming a fulcrum, over which the posterior straight ligament passes—this condition favoring a sprain of the ligament, which is called curb. (See Curb.)

Cramp.—Cramp of the stomach or bowels of horses cannot readily be distinguished from spasmodic colic (which see).

Cramp of the Hind Leg.—This affection is common among

young horses of an irritable temperament. It is often mistaken for dislocation of the patella, sometimes called luxation of the petella (which see).

Symptoms. The horse will persistently refuse to move the leg from the position in which it is placed. Quivering or excitement of the muscles of the thigh, accompanied with irritation and fever. The horse cannot be moved, as he refuses to do so.

Causes. Irregularity of the nervous system.

Treatment. Move the animal, if it be possible, and the cramp will give way. Dashing cold water against the thigh will often remove it. The horse will get well, if time be only given him. Thus, if a person leave the stable to tell some one of the matter, he will be surprised, on coming back, to find the horse well.

Crib-Biting.—This is not a disease, but a vice—a bad habit, which the horse has learned, of sucking wind into the stomach by placing his lips against the manger. The habit has been so strong in some horses, that when they could get no place to press the lips against, they have stooped down and placed the lips against the arm of their own front leg. This vice is sometimes called wind-sucking.

Causes. Idleness, indigestion, and learning it from other animals in the same stable.

Prevention. Keep horses in loose boxes, or other places where there are no fixtures but the walls; regular feed and regular work.

Treatment. Do not let the horse stand in the stable twenty hours out of the twenty-four. Feed him regularly, and work him as regularly. Turn the animal to pasture, and when he is brought home in the fall of the year, have a loose box prepared for him without any fixtures, as manger, trough, or rack. Place his hay upon the floor, and his oats or corn in a small trough, and remove it as soon as the feed is eaten.

Curb.—One of the many diseases of the hock-joint, and consists in a swelling immediately below the point of the hock-joint, and is the result of sprain of the posterior straight ligament; is more frequent in horses with the hocks inclining forward (cow hock). The treatment best adapted is the ointment of the red iodide of mercury (see Ointments), which is not only a counter-irritant, but a sorbefacient. Apply about the size of a hickory-nut in quantity

every sixth day for a few weeks, occasionally greasing or oiling the parts to prevent the skin cracking.

Curby-Hocked. —(See Cow Hock.)

Cutaneous Diseases.—(See Skin Diseases.)

Cutting.—(See Interfering.)

Death.—The great law of the universe makes limits of duration to every structure endued with life, and prepares a way for the resolution of every material provided with vital principles into matter of the earth. The individual existence of all organized bodies is merely temporary; none escape the necessity of perishing.

Debility.—This is a condition accompanying many diseases, hence the necessity of guarding against any measure in the treatment, even of a disease of an exalted kind that will reduce the strength. The animal thus affected rapidly becomes weak and debilitated, to such an extent as may cost it its life.

(1.) DEBILITY, SIMPLE.—May be local, that is, confined to a part, as in partial paralysis, from the effects of a blister applied to a part, or from a kick or injury.

Symptoms. A thickening or swelling of the parts. The swelling is not inflammatory, but soft, and contains fluid. (Œdema.)

Treatment. Powdered sulphate of iron, one ounce and a half, gentian root, two ounces; chlorate or nitrate of potassa, one ounce. Mix, and divide into twelve powders, and give one night and morning mixed in cut or soft feed, with no more water in the feed than will keep the particles together. Feed the animal generously and well. Debility and swelling of the legs of horses now-a-days, at least in this country, can be produced by simply keeping a portion of their usual feed from them for two or three days.

(2.) DEBILITY, GENERAL.—*Symptoms.* Swelling of the legs, sheath, breast, and belly. Disturbed breathing. The horse is very weak, and easily pushed from off his feet by the hand. Indeed, he staggers as he walks, and sometimes falls to the ground.

Causes. Bleeding or giving physic (a purge) in the treatment of disease, especially in diseases of the chest. Starving and low diet given to a sick horse, when he should be supported in the midst of his sickness by good feeding. The very neglect, or want of knowledge on this point, has killed thousands of horses that

would have lived, that have been sacrificed at the shrine of ignorance, error, and bad judgment. This condition of things in relation to the treatment of diseases of the horse, and indeed all our faithful animals, may be ascribed largely to the diligence and persistence of American publishers in deluging the country with reprints of old English books that should never have been written.

Treatment. Give plenty of good food to the maltreated animal, and give the following blood-making medicines:—Powdered sulphate of iron, three ounces; gentian root, three ounces. Mix, and divide into twenty-four powders, and give one powder night and morning. If there is much swelling about the body, add five grains of powdered Spanish fly to the evening powder, for a few nights only. Be assured the animal is fully restored before it is put to hard work.

Deformities.—In young colts will often be observed a deformity of one or both fore legs from the knee down, giving the whole appearance an awkward look. Farmers having such a colt should not think it useless, or at all impaired; for in my own extensive practice, I have not seen one that did not become as perfect as the best formed of animals.

Observe.—Whether the mother have sufficient milk for the colt, and if not, teach the colt to suck milk out of a bottle, or from something else; for by good nourishment these deformed conditions of the legs will disappear.

Deuteropathia.—A disease of secondary character, or in sympathy with another. (See Fever.)

Diabetes.—This is a disease accompanied by a great and frequent flow of urine, containing sugar in solution.

Causes. The starch, and some constituents of the food are transferred into sugar. The origin of this affection is supposed to be a ferment changing the material of the system into sugar, as diastase converts starch into sugar in malting.

Symptoms. Great flow of clear urine, very great thirst, ravenous appetite, weakness and general debility.

Treatment. Although this disease is considered incurable, I have on two occasions cured the animal by the iodide of iron, too expensive a medicine to be recommended for general use. The action of this medicine, at least the iodide portion, allayed the

thirst, and the iron supported the strength and system, also acting as an astringent (to dry up).

This medicine should be seconded by good feeding and plenty of it. (See Iodide of Iron in Medicine List.)

Diaphoretics.—This term is applied to medicines having the power of producing sweating. The horse is not easily acted upon in this way by the use of medicines, except by one or two articles, as aconite or veratrum (which see). Slight moisture on the skin is very desirable in cases of fever. The cold water *douche* is used by hydropaths for this purpose.

When sweating is desired for the cure of disease, it must be done without increasing the heart's action. This is the great secret in producing diaphoresis.

Diarrhœa.—(1.) SIMPLE DIARRHŒA consists of a looseness, or fluid condition of excrement, from something irritant in the bowels, and which does not freely pass away. When this condition is present, and no pain, griping or pawing as in colic, it may be well let alone.

(2.) CONTINUED DIARRHŒA.—This is often the case when irritation does not pass away with the offending matter, and the bowels continue to discharge a thin fluid. There is slight pain or colic. When this is the case, suspect some irritant poison. (See Poison.)

Treatment. From whatever cause the diarrhœa may arise, treatment that will allay pain is demanded. *First.* Give twenty to twenty-five drops of the tincture of aconite root in a little cold water. Then give the following powder every two hours, until a change for the better has taken place:—Prepared chalk, half an ounce; catechu in powder, one drachm; opium in powder, ten grains. Allow the animel plenty of water to drink, which will help to keep or allay irritation, or what disposition there may be to inflammation. Bran mashes should be given for a few days, so as to overcome the effects of so much drying or binding medicine. Cake meal, or ground flaxseed, will be an excellent assistant in this particular.

Diathesis.—When we read in medical books of the word diathesis, it means a well-marked tendency in a disease by a corresponding diathesis: for example, a cancerous diathesis or an inflammatory diathesis.

Diet.—The different articles used by the horse as food.

Disinfectants.—French, *Desinfectants;* German, *Faulnisswidrige Substanzen.*

Disinfectants are such as remove the *causes* of infection, or any injurious taint. To accomplish this effect, disinfectants will have to embrace a class of substances known by the name of antiseptics (agents which prevent animal or vegetable matter being decomposed), and deodorizers (agents which destroy hurtful or bad smells, when arising from decomposing material).

(1.) Natural Disinfectants.—The atmospheric is the great disinfectant. The soil has been found a valuable disinfectant, decomposing animal matter with great quickness, and sending out gasses which are without taint of any kind. Hence, the necessity of deep burial of animals dying, or that have been killed, on account of contagious diseases.

Ventilation is entirely a mechanical plan of disinfecting, and which it is in the power of every farmer in the land to more or less perfect in all buildings containing horses, cattle, etc. In ventilating, it is only necessary to admit the purest air, and for this purpose have the openings, or ventilators, placed at least eight to ten feet from the ground, as it is well known that heavy vapors are sometimes seen a few feet above the ground. Also, the ventilation should come from the front or top of the building, as the back of a stable is never so pure as its front.

Water is the next great disinfectant employed by nature, although moist bodies decay more rapidly than dry. It is a disinfectant by the process of washing, which is mechanical. It is in this way that each shower of rain becomes a natural disinfectant. Light is another disinfectant, which seems to have been overlooked by many, when their barns and stables were built. Without light the rose would lose its color, and man and animals would lose and never attain their vigor.

In proof of the advantage of light in maintaining health, and warding off disease, it is stated that in a barrack at St. Petersburg, there was only one case of disease on the side laid open to the light, to three on the dark side.

Heat and cold are two agents highly useful as disinfectants. Heat prevents fermentation and decay by drying and changing

the chemical state of substances, as it were, by cooking, whether by fire or the sun. Cold, again, is the most powerful antiseptic and disinfectant. Frosts prevent decay and disease, and at the same time share the connection existing between them.

(2.) Artificial Disinfectants.—Creosote is a most powerful antiseptic and disinfectant, when applied to a part, but is not easily managed. Smoke is another good antiseptic, as it contains a little creosote. By it herring and other fish are preserved.

Spices, and other aromatic substances have long been used as disinfectants, but they possess no such property, as they do not prevent decomposition of bodies; they merely cover the smell.

Chloride of lime and chloride of zinc act as good disinfectants.

The chloride of manganese is certainly as economical a disinfectant as can be used by the farmer. It is cheap and efficient, and not dangerous like chloride of zinc.

Sulphurous acid, or rather its fumes, has, in all ages, been used as a disinfectant, and by general consent is considered to be most valuable. Its action on animal and vegetable substances is readily seen by the change in color produced. In the form of sulphite of soda, it will arrest the vinous fermentation in cider and other materials; or if injected into the veins of dead animals, it embalms them most perfectly.

For stables and houses filled with animals nothing will answer so well as chloride of lime, or McDougal's disinfecting powders, applied to the floors and excrement once per day, with a large dredging box.

For empty houses chloride of gas will be found as convenient and good as any. For this purpose procure a strong wide-mouthed bottle, fill it about half full of bin-oxide of manganese, close all the doors and windows, and other open places, then fill up the bottle with the spirits of salts, and retire and close the door. This may be repeated a few times in the course of a week. The fumes that are disengaged will penetrate to every crevice and corner in the building. This operation any farmer can perform himself, as there is no risk whatever. The spirits of salt will have to be kept in a glass-stoppered bottle till it is wanted, as it will not only eat a common cork, but it will, by exposure to the air, abstract moisture from it, by which it greatly loses its virtue and

strength. As before stated, this plan of disinfecting is only to be used when the house is empty. (See Sulphurous Acid Gas in Part II.)

Distemper.—(See Influenza and Strangles.)

Distemper, Choking.—(See Typhosus.)

Diuretics.—A name given to those medicines which cause an increased secretion from the kidneys. Example, chlorate and nitrate of potassa, the Spanish fly, and eupurpurin. (See Medicines.)

Dropsies.—Every school-boy is familiar with the term dropsy, which means an unnatural accumulation of water in the cavities of the body, chest, heart-case, belly, breast, sheath, and cellular tissue of the legs. (See Debility.)

1. When water is in the chest it is called Hydrothorax. This is the immediate cause of death, in pleurisy in the horse, and pleuro-pneumonia in cattle, the animal dying by suffocation or asphyxia.

2. When in the belly, it is called Ascites.

3. When in the cellular tissue, and confined to a portion only of the body, as the leg or sheath, it is called Œdema; but if the swellings are over different portions of the body, it is called Anasarca.

4. When in the heart-case or pericardium, it is called Dropsy of the Heart.

Causes. Treatment of diseases by starvation, or low diet, bleeding, blistering, and physicking. Injury to a part will be followed by watery swellings in the neighboring parts.

Treatment. Blood-making food and medicines are imperatively demanded. Corn meal mixed with bran and cut hay. Grass, if it can be had. A bottle of strong beef tea or soup, given daily, will be of great use. Give the following medicine three times a day, either mixed in the food or poured down the mouth with a bottle: Powdered sulphate of iron, one drachm; powdered gentian root, two drachms; Spanish fly, two grains. Mix. Friction over the swelling will be of use. Sometimes it will be necessary to make slight incisions or cuts through the skin to let out the imprisoned fluid. Do not blister such swelling, as it is apt to produce ragged, running sores, difficult to heal, and leaving a blemish.

Water in the chest is removed by introducing an instrument (see Instruments) called a trocar, but somewhat smaller than the one used for *hoven* in cattle. Also it is removed by absorption and by diuretics (which see).

Dysentery.—(See Diarrhœa.)

Ear Diseases.—(1.) Small Tumors.—Sometimes tumors of various shapes and sizes are seen in the ear of the horse, producing a kind of canker in that organ.

Symptoms. Shaking of the head; will not let much familiarity be made with him; running or starting back, when the collar or bridle is being taken up over the ears.

Causes. Irritation and inflammation of the skin of the ear, producing small pimples of proud flesh.

Treatment. Removal with the knife, scissors, or caustic; then apply the simple ointment as for a simple sore. (See Prescription in Medicine List.)

(2.) Injuries of the Ear.—Injuries to the ear take place from the use of the whip, the bite of a dog, or from another horse biting it.

Treatment. Treat as for a common sore, by simple ointment and by cleanliness.

(3.) Deafness.—Not often observed in horses.

(4.) Foreign Substances in the Ear.—Remove them by the forceps.

(5.) Abscess in the Ear.—*Treatment* as for Abscess (which see).

(6.) Dry Gangrene in the Ear.—Two cases of this affection have been brought to my notice, in which the concha of the ear had dried up, withered, and dropped off.

Ecchymosis.—Black spots observed on the lungs of cattle and horses having died from pleuro-pneumonia.

Eczema.—(See Mange.)

Elephantiasis.—A name applied to a swelled leg. (See Grease.)

Embrocation.—A term applied to liniments. (See Prescriptions.)

Emetics.—Medicine, often taken into the stomach of man and some animals, causing them to vomit. The horse, ox, and sheep

do not, or rather, cannot vomit. Hence, *tartar emetic* has no effect upon them.

Emphysema.—This is a name signifying wind-swelling, caused by the escape of air into the cellular tissue, as between the skin and the flesh, or rather the fascia and the skin. Pressure with the hand on these windy swellings causes a crackling noise or sound. This condition sometimes arises in the chest, and is attended with difficult breathing and anxiety of countenance.

Causes. Wounds in the chest, and when underneath the skin, it is caused by undue pressure on the part, causing a separation of the skin from the fascia.

Treatment. This consists in evacuating the air by slight punctures on the surface of the swelling, assisted by gentle pressure of the hand.

When in the lungs, give good feeding, and occasionally small doses of the tincture of aconite root, say 10 drops, three times in the day, to relieve the breathing, until the lungs heal up.

Encysted Tumors.—(See Tumors.)

Encephaloid.—(See Tumors.)

Endermic.—A plan of treating disease by placing the medicine in contact with or under the skin. Morphia and strychnia are the agents in common use in this form of administration. (See Typhosus.)

Enema.—(See Injection.)

Ephemeral.—A fever which runs its course in twelve to forty-eight hours.

Epidemic.—This term is applied to diseases of animals, but improperly, as the term is exclusively a name that should only be used for diseases when man is the subject. *Epi*, upon, and *demo*, the people—a disease upon the people. Epizootic is the proper name for animal diseases. *Epi*, upon, *zoon*, an animal—diseases upon animals.

Epizootic.—A disease that attacks many animals at the same time and season, originating in one common cause. Examples—epizootic-influenza in the horse, and pleuro-pneumonia in cattle.

Epilepsy.—An epileptic horse should never be used for family driving. (See Megrims.)

Epiphora.—Weeping from the Eye. (See Eye Diseases.)

Epsom Salts.—(See Medicines.)

Eruptions.—Eruptions are more a symptom than a disease. (See Strangles, Surfeit, Stings of Insects, and Scarlatina.)

Erysipelas.—This, as an independent disease, is not often, if at all, seen in horses. It is often present after accidents, as a bruise or a broken bone.

Symptoms. A hard, tense and painful swelling of the parts, accompanied with irritation and excitement through the entire system.

Treatment. Give twenty to twenty-five drops of the tincture of aconite root four times in the day, to calm the system. Apply cold iced water, with woollen cloths, to the part. If from broken bones, try and remove, or adjust them in position to one another, and secure them so with splint and bandage. In severe cases of broken bones the animal had better be killed. (See Fractures.)

Exostosis.—(See Splint and Bony Tumors.)

Eyes, Diseases of the.—Before referring to the diseases of this organ, it may be necessary to say a few words as to the structure of the eye.

(1.) The eyelids are composed of skin, and under it the fibres of a circular muscle which close the eyelids. The eyelids are lined internally with a mucous membrane called the conjunctiva, which is reflected from them over the anterior surface of the eyeball.

(2.) The globe of the eye is not exactly round, for it is more like a segment of a smaller circle put into a greater one.

(3.) The clear portion of the eye is called the cornea, and forms a portion of the globe.

(4.) The sclerotic coat is what is called the white of the eye; and just back of it is what is called the choroid coat of the eye. And immediately within this choroid coat is placed the retina, or the expansion of the optic nerve, or the nerve of sight.

(5.) The humors of the eye occupy the anterior chamber, as well as pass into the posterior. The iris floats in this humor, and behind it will be found the magnifying lens of the eye. This is a double convex, and is placed in the centre of vision, and fronting the next, or vitreous humor of the eye. This humor is enclosed in a capsule, called the hyaloid membrane. The eyes of the horse are so placed in his head, that he, at the same time sees different

objects with each eye, which peculiarity accounts for the shying and starting, when one eye is imperfect or diseased. If one eye only be altogether destroyed, the horse will not shy or start, but will be a useful animal. This is the reason why cataract on the eye of a horse had better be let alone, as any imperfect sight will make the horse dangerous to drive, objects being seen in a distorted form. Better the eye to be completely destroyed than partially so.

(1.) AMAUROSIS.—This is the same disease that Milton was affected with, and was called by him "drop serene." It is a complete or partial blindness from loss of sensation, or feeling of the optic nerve.

Symptoms. This is the most serious disease affecting the eye of either man or horse, and is ushered in by weeping and partial closure of the eyelids. A thin film or scum will soon be observed to spread over the whole of the front of the eye. This condition will pass off for a week or two, and then return with increased violence until the sight will be entirely destroyed. Spots will be seen between each attack, deep in the eye, gradually increasing in size, till the nerve of sight is totally destroyed.

Causes. Inflammation affecting the brain, tumors, or bone pressing upon the optic nerve.

Treatment. Doubtful of cure. Small doses of *strychnine* may be tried to restore the sensibility of the optic nerve, or colchicum may be used. (See Medicine.)

Observe. There are many horses with extremely flat foreheads, the bones seemingly pressing upon the lower portion of the brain, just where the optic nerve is given out to the eyes. These flat-headed (that is in front of the head) horses, I have observed to go blind about the seventh year of their age. Blindness arising from such a cause, may justly be laid at the door of hereditary causes. Breeding from blind mares should, therefore, be, as a rule, avoided. If a mare from accident becomes blind, there are no scientific reasons why she should not be used for breeding purposes. What is to be observed is, not to breed from a mare that has a very flat forehead and has not gone blind from accident or injury to the eye.

(2.) FLOATING SPOTS IN THE EYE.—Sometimes dark cloudy spots or specks will be seen floating in the eye, more or less movable,

rising and falling, as the eye itself moves. If they are unattended with weakness of the eye or the spots are not fixed, and dark, indicating the commencement of the disease named above, they will be no great injury.

Causes. Some constitutional disturbance, over-driving, or hard work.

Treatment. Inject, or apply cold water several times in the day.

(3.) Iritis.—Inflammation of the iris.

Causes. Cold and exposure, producing rheumatism in that portion of the eye.

Symptoms. Redness of the eye, and muddy color of the cornea. The iris is a little changed in color.

Treatment. The application of moist poultices to the eye for a few days to allay inflammation, or irritation. Then apply three times daily, with a small brush called a camel's hair pencil, the following mixture: nitrate of silver, twelve grains; rain water, four ounces. The brush to be dipped in the mixture, and drawn lightly across within the eye. Keep the horse from the light as much as possible.

(4.) Inflammation of the Sclerotic Coat.

Symptoms. The coat is of a pink-red color.

Cause. Rheumatism.

Treatment. A teaspoonful of the wine of colchicum root, four times in the day; comfortable stabling and generous feeding.

Half-drachm doses of the iodide of potassium may be tried in this case. Half-ounce doses of sesquicarbonate of soda, occasionally, will be of service.

(5.) Polypi. Small excrescences are sometimes seen to arise from the iris, but require no treatment, as they will pass away of themselves.

(6.) Spots and Ulceration of the Cornea.

Symptoms. Blood vessels tinged with blood; small, elevated spots, which are sometimes ulcers, and at other times small abscesses, owing to the abscesses being whole or broken.

Treatment. Take belladonna, half a drachm; cold water, six ounces. Mix, and apply to the parts with a camel's hair pencil dipped in the mixture. Scarify or open the angular veins of the eye, and foment with warm water, to insure a good flow of blood.

This treatment should be followed by a lotion of the nitrate of silver, or of blue stone—sulphate of copper (see Medicines), to destroy the ulcers inside the eyelids; then apply the belladonna lotion as before. It will require repeated applications alternately to effect a complete cure. It will be advisable to feed the horse well, to increase absorption of effused fluids and thickenings. Iron and gentian will be useful. (See Medicines and Prescriptions.)

(7.) Weeping from the Eye.—This is more properly a symptom than a disease—a swelling of the *caruncula lachrymalis*—a small, round body.

Treatment. Touch the swelling with a camel's hair pencil dipped in the lotion of blue stone, or nitrate of silver. Four grains to an ounce of rain water, will be strong enough for this purpose. This treatment will cure tho weeping, provided the tear-duct be open.

(8.) Closing of the Eyelids.—*Treatment.* Apply warm water with a sponge for a period sufficiently long, so as to dissolve or dilute the mucus, which causes the lids to stick together. To prevent a recurrence during some diseases of the eyes, smear the lids with sweet oil, or cold cream, every night while the disease lasts.

(9.) Hair Growing in the Eye.—Scientifically, this is called *Trichiasis.* The removal of the hair by tweezers, or forceps, and the application of some eye-wash to remove the irritation, are the proper means to be employed.

(10.) Swelling of the Eyelids.—This is sometimes observed in bad cases of mange (which see).

(11.) Simple Ophthalmia, or Catarrhal Ophthalmia.—*Symptoms.* A thick, mucous discharge from the eye, accompanying cases of cold or catarrh, redness and swelling of the membrane lining the inside of the eyelids. This condition and appearance resemble the lining of the nose in cases of cold. This affection may, with propriety, be called muco-purulent ophthalmia, and it is not unlike the Egyptian ophthalmia of man, produced by the introduction of the flying sands of the Arabian desert. Ophthalmia may be simple or acute; consequently, the treatment will be accordingly.

Treatment. The application of cold water; or if the cold seem to give pain, warm water should be used instead. Open the angular veins. This is done as follows: Take a sharp knife, and simply cut the skin and the veins which are seen underneath at the lower corner of the eye, and bathe with warm water, which will induce them to bleed freely. Give grass, or some other opening and cool feed. Give, also, half-ounce doses of sulphite of soda daily for a few days. The nitrate of silver lotion, or the blue stone, will do; it is cheap and easily procured, and therefore better adapted for the farmer or stable man. Apply as elsewhere recommended. Never use sugar of lead lotions as an eye-wash to the eye, which books so often recommend. They are positively injurious to the eye by their producing dulness, or opacity of the cornea—or the clear, transparent part of the eye—the very brightness of which indicates health, beauty and intelligence in a horse; so, once for all, I say, use no Goulard's solution of lead. Copper is infinitely better, and never leaves dimness of the eye or vision. If copper be not at hand, chloride of zinc, one grain, to an ounce of rain or distilled water, is an excellent application to the eye of a horse suffering from purulent ophthalmia. (See Medicines and Prescriptions.)

(12.) Moon Blindness, terminating in Cataract.—This disease is a serious one, and frequent, consisting of inflammation of the internal parts of the eyeball, the choroid coat and the iris more particularly.

Symptoms. In the morning, perhaps, the eyelids will be found closed; a large flow of tears; the back portion of the eye dim and clouded. No specks are to be seen, as in some other diseases of the eye. A yellow border will be observed at the bottom of the chamber. This is pus. The attack, or inflammation, will last from two to three weeks; at the end of which time the eye will brighten up, and the ordinary observer may think that the eye is completely cured. The pus is entirely absorbed, scarcely leaving any traces behind, except a degree of dimness. In one, two or three months, and not by the regularity of the moon's changes, as horsemen suppose, the disease reappears, having the same symptoms and characteristics as in the first attack, only a greater deposit of pus will be left at each sub-

sequent attack. One attack succeeds another until the whole pupil is filled with matter, constituting cataract, thus completely destroying the eyesight. This disease is usually at first confined to one eye, but in some cases both are affected, one usually more severely than the other.

Treatment. This disease is deemed incurable, which fact has often induced the owner of an animal thus affected to sell him, being well aware that the disease will at no distant day return, and leave upon his hands a blind horse. An application of cold water and the tincture of opium should be used to allay pain and irritation; cold water, one ounce; tincture of opium, two drachms; to be applied by means of a camel's hair pencil.

Observe. When one eye of a horse is affected with this disease, the other will also ultimately become affected. To prevent this, it has been advised, as is done in man, to have the diseased eye entirely extirpated. In horses, I would rather puncture the cornea with a lancet, and allow the watery humor to escape, thus permitting the diseased eye to sink in the head. This being done successfully, the remaining eye will not only retain, but will increase in lustre and brightness.

False Quarter.—(See Foot Diseases.)

Farcy.—The reader will be not a little surprised at the opinions that are advanced by me in regard to this disease, especially if he be a reader of the books on the diseases of horses. In these books we are distinctly told that farcy is a variety of glanders, and that farcy buds are of the same nature as the ulcers of the lining membrane of the nose in cases of glanders. This may or may not be true. But why not have given the reasons why these relations were so sustained to each other? Thus assertion is put for fact, and ignorance for great knowledge. Farcy is not a disease attacking the absorbent vessels, nor glanders of the lining membranes of the nose. Farcy, we are again told, is curable, and in the very next sentence that glanders is incurable. Why this peculiarity? For if the diseases be the same, they should be equally susceptible of cure. From all that has been said and written on the subject of farcy and glanders, nothing satisfactory has been gained, but much that is calculated to perplex. Farcy is the "scrofula" of the horse. It is unknown in countries and climes where this

disease in man is never seen, and a disease inseparable from the present manner of domestication. In a word, the disease called farcy is nothing more nor less than the effects of a class of pathogens called ferments, leavens, or zumins, acting and producing fermentation in the blood. (See Glanders.) In medicines zumins are used, such as yeast, rennet, pepsin, and cow-pox matter. Among the various diseases of the horse, produced by ferments, are glanders, farcy, purpura, grease, and several eruptions of the skin and legs. This is readily explained. For instance, if the liver, kidneys, skin, and bowels of a horse be not acting right, how is effete matter to be eliminated or carried from the blood or the body of the animal? This effete matter, as a small piece of membrane, dead bone or pus, not escaping by the usual channels, will decay and become an active ferment in the blood and in the fluids of the body. This, then, is the only true explanation of the phenomena of farcy in the horse.

Symptoms. An unhealthy coat; bad habit of body; one leg, usually the fore leg, will swell to a very large size—hot and painful, and in a day or two it will break out in small, running ulcers, or sores, discharging a sanious fluid, sometimes of a thick and resinous color. On the inside of the leg, or on the side of the body or on the neck will be seen a thick, corded, and elevated substance under the skin, of considerable hardness, and interrupted at distances with a small sore similar to that on the leg. In some cases—not in every case—circumscribed and soft, puffy swellings will be seen about the mouth, lips, and indeed on many parts of the body. These swellings are not to be confounded with swelling of the legs, belly, breast, sheath, etc., in cases of weakness or debility. These swellings have been named water farcy by some people, but have no connection with true or malignant farcy whatever, and are not in any way infectious or contagious. After some alterations and changes occupying a few weeks, the animal becomes much changed for the worse, the blood becoming so deteriorated and changed in character that the animal's vitality soon gives way, and the horse dies a miserable object.

Causes. Overcrowding horses in small and insignificant houses, with little or no ventilation, each animal repeatedly breathing the noxious or waste material from the lungs of his companions, thus

introducing into the blood a powerful pathogen in the form of a ferment; inoculation from the virus of glandered or farcied horses, the inoculation producing a ferment; debility, ending in changing the character of the blood. Absorption of pus from sores or ulcers into the blood is another powerful ferment, and ends either in farcy, glanders, or some other zymotic disease.

Treatment. Having fully and sufficiently explained the cause of this disease, the treatment is almost already pointed out, namely, remove the cause, and the effects will cease. For this purpose give the following substance twice a day, a tablespoonful to a dose: Sulphite (not sulphate) of soda. This new chemical salt will purify the blood, as its action destroys fermentation, whether in a barrel of wine, cider, or in the blood of a horse. Continuing this till the horse is well, and for a few weeks afterwards, two or three times a week, will be of good service. (See Sulphite of Soda.) While the blood is thus being purified and made fit once more for the purposes of life, it will be necessary to add something to it also, thus assisting the powers of the constitution to overcome the difficulty. We will not only add to the blood, but give something to facilitate the removal of the effete matter from the body, without weakening the animal with debilitating diuretics. For this purpose, the following medicine will be given: Powdered sulphate of copper, three ounces; powdered Spanish fly, one drachm; powdered gentian root, four ounces. Mix, and divide into twelve powders, and give one powder at night in some good feed, with no more cold water in it than will keep the particles of the feed together. These powders will do for two weeks; at the end of that time get more, and continue them till the horse is well. In addition to what has been recommended, give grass, and good and generous feed, for by these means the power and strength of the body will be kept up, and a cure will be more surely and speedily effected.

While this treatment is going on, the horse will have to be removed to a place by himself, or from healthy animals. Keep all articles used in feeding, clothing and cleansing him, in the building with him. Remember, this is considered one of the contagious diseases of the horse. Not only the safety of your own, but of your neighbor's horse, depends upon your observance of these

directions. In case you should place a horse so affected, either in a field next to your neighbor, or in his stable, and his horses become affected, you will be liable to a suit at law for damages arising therefrom. From my experience in horse causes in the courts of Philadelphia, it will be easier to bring a suit than to gain it, if there be scientific witnesses on the stand, as the question will arise, Was the disease, or was it not, communicated from the sick horse so placed? Obviously, these are questions more easily asked than answered.

Fatty Tumor.—(See Tumors.)

Farrier.—Properly, this title belongs to the blacksmith, whether a horse shoer, or of other branches of iron working, *faber ferrarius;* but from some idea or other, we hear of persons, otherwise well informed, saying, when speaking of accident or sickness to horses, to have or send for a *farrier.* Now, what is there possessed by workers in iron, that they should know any more about diseases and their treatment than is possessed by a worker in wood? Persons of education should look into the etymology of a term, even if it should be used by the mass of the people: for it is by the language and general deportment, that a man of education is known from his less learned prototype.

Fever, Putrid.—(See Typhosus.)

Fever, Sympathetic.—This variety of fever is that which is produced by accident and disease. Thus, a horse gets a nail in the sensitive part of the foot, excitement, or sympathetic fever is an accompaniment. Lung disease is accompanied with fever, and hence it is called lung fever. Fever in the feet is a common expression, signifying sympathetic fever. Indeed, it is a question in my mind, whether fevers of all kinds are not to be attributed to some local or general disturbance of some action or function of the body. Thus, the many fevers which attack the human family can readily be traced to a predisposing cause; as, for example, typhus fever is caused by insufficient ventilation, besieged towns and garrisons, preventing the removal of *exuvia.*

Fever in the Feet.—This is a common disease of horses in large towns and cities, where the streets are paved with stone or iron, whereby the concussion is very great, when horses are driven fast. (See Founder.)

Fibroma.—A variety of Tumor. (See Tumors.)

Firing Horses.—This is an operation which is a great favorite, and in much repute among horse doctors. For my part, I think it is not only cruel and barbarous, but unnecessary, doing no good whatever, and in many cases a positive injury, the effects of which will never disappear from the legs or body while the animal lives. Firing is intended by its advocates to prevent and cure spavin, curbs, sprains, and ring bones, by scoring the parts with a red hot iron in lines over the part that is thought will *be* diseased, or is already so.

Fistula.—*Examples.* Fistula of the shoulder, of the poll, poll-evil (which see), and quittor or sinuses of the foot (which see). Fistulas are usually deep-seated, but sometimes they are superficial, or just under the skin. However, although we see them sometimes so situated, it must be confessed that the cases are extremely rare. The fistula most frequent and difficult of cure is always deep-seated and in the vicinity of a joint, as the poll and shoulder. The reason of this is easy of explanation, for when these parts get injured, and suppurative action is set up, the pus, instead of pointing to the outward surface, burrows down in among the loose textures, and forms sinuses or pipes, pointing in several directions. Fistula differs from a simple abscess in this particular, and therefore is difficult of cure. The pus secreted is nearly the same. The pus in a simple abscess is secreted from, and is a liquification of, the surrounding tissue; but the pus of fistula is secreted from the walls of a fibrous sack, which is formed in most cases of fistula. The fistula may be open or whole, presenting a large swelling.

Symptoms. Pain on pressure of the parts affected, followed by heat, pain, and swelling, circumscribed in shape, hard at first, and becoming soft and fluctuating upon pressure by the finger—a sure indication of fluid within. This swelling, from the firmness and integrity of the sack and skin in which it is enclosed, does not break, nor yet form sinuses that take on the character of an encysted tumor, which does not break of its own accord, as simple abscesses do. At other times the fistulous tumor breaks or opens in several places, and small holes discharge pus, some to-day and none to-morrow. The day the discharge is free, the pain and

swelling is less. Among the pus will be observed organized matter, similar to cheese, or in other words, not uniform in thickness or appearance. This is a disease that rarely ever gets well of its own efforts, from the fact of the sore having a sack, which is only removed by art; also from the situation of fistula presenting no depending opening for the outlet of pus.

Causes. Bruises, accidents, caries of the bones (which see), inflammation of the bone, or any accident that will cause a simple abscess, will cause fistula.

A blow that would produce a common abscess on some portions of the body, will result in fistula in other portions, as in the vicinity of a joint.

Treatment. If the swelling is just forming, endeavor to put it back by placing chopped ice, in a bag, over it for a few days. By this means, many a swelling which would terminate in a fistula, will be cured at once. This not succeeding, have an opening made into its lower side, so as the bloody water, which it at this time contains, will be discharged. Then syringe a half tablespoonful of the tincture of iodine into it once a day for a few days, to eat or destroy the membranous sack. Then treat it as a common sore by keeping it clean, and the opening from closing before it has healed from the bottom. For this purpose, place a small piece of cotton in the mouth of the opening, smeared with simple ointment. (See Medicines and Prescriptions.)

Fistula in the Foot.—This disease, by common consent, is called quittor, a fistulous abscess in the foot. (See Quittor.)

Fistulous Withers.—By farmers called Thisolow, or Fisolow. This is an affection described in the preceding article, with this difference in some cases, that it extends through over the top of the bones of the withers or shoulders to the other side, thus forming a very broad pad, as it were, on the top of the shoulder, just where the shoulder in health is the sharpest and narrowest.

Treatment. Lay chopped ice in bags over the swelling, and, if necessary, open and take out the sack, or destroy it by the injection of the tincture of iodine, and dress as for a common sore. (See preceding Article and Poll-Evil.)

Fits.—This is a term applied to horses subject to megrims, or

staggers (which see), causing them to fall. Hence, the expression, "fitty horse."

Flaxseed.—Every part of this seed is used one way or another in the treatment of diseases of the horse. The ground seed, mixed with warm water, is an excellent cooling food for horses, almost a laxative. The pressed juice, or oil, is a certain and safe purgative for the horse, in quart doses. The residue, which remains after the oil has been pressed, commonly called cake meal, when mixed with warm water, makes the best of poultices to a sore or wound. (See Poultices.)

Food, Hints on.—1. All horses must NOT be fed in the same proportions, without due regard to their ages, their constitutions, and their work. *Because the impropriety of such a practice is self-evident. Yet it is constantly done, and is the basis of disease of every kind.*

2. Never use bad hay on account of its cheapness. *Because there is not proper nourishment in it.*

3. Damaged corn is exceedingly injurious. *Because it brings on* INFLAMMATION *of the Bowels and* SKIN DISEASES.

4. Chaff is better for old horses than hay. *Because they can chew and digest it better.*

5. Mix chaff with corn or oats, and do not give them alone. *Because it makes the horse chew his food more and digest it better.*

6. Hay or grass alone will not support a horse under hard work. *Because there is not sufficient nutritive body in either.*

7. When a horse is worked hard his food should chiefly be oats and corn; if not worked hard, his food should chiefly be hay. *Because oats and corn supply more nourishment and flesh-making material than any other kind of food. Hay not so much.*

8. For a saddle or coach-horse, half a peck of sound oats and eighteen pounds of good hay are sufficient. If the hay is not good, add a quarter of a peck more oats. A horse that works harder may have rather more of each; one that works little should have less.

9. Rack-feeding is wasteful. The better plan is to feed with chopped hay, from a manger. *Because the food is not then thrown about, and is more easily chewed and digested.*

10. Sprinkle the hay with water that has salt dissolved in it

Because it is pleasing to the animal's taste, and more easily digested. [A teaspoonful of salt in a bucket of water is sufficient.]

11. Oats and corn should be bruised for an old horse but not for a young one. *Because the former, through age and defective teeth, cannot chew them properly; the young horse can do so, and they are thus properly mixed with the saliva, and turned into wholesome nutriment.*

12. Grass must always be cut for hay before the seed drops. *Because the juices that ripen the seed are the most valuable part of the hay. If they are sucked out by its ripening and dropping, the grass* WILL NOT TURN INTO HAY; *but will wither and grow yellow.*

13. Vetches and cut grass should always be given in the spring to horses that cannot be turned out into the fields. *Because they are very cooling and refreshing, and almost medicinal in their effects; but they must be supplied in moderation, as they are liable to ferment in the stomach if given largely.*

14. Water your horse from a pond or stream, rather than from a spring or well. *Because the latter is generally hard and cold, while the former is soft, and comparatively warm. The horse prefers soft, muddy water to hard water, though ever so clear.*

15. A horse should have at least a pail of water, morning and evening; or (still better) four half-pailsful, at four several times in the day. *Because this assuages his thirst without bloating him. But he should not be made to work* DIRECTLY after *he has had a* FULL DRAUGHT *of water; for digestion and exertion can never go on together.*

16. Do not allow your horse to have warm water to drink. *Because, if he has to drink cold water, after getting accustomed to warm, it will give him the* COLIC.

17. When your horse refuses his food, after drinking, go no further that day. *Because the poor creature is* THOROUGHLY BEATEN. (See Humanity to Animals.)

Fomentations.—This term has been used exclusively in the application of warm water to an inflamed or sprained part, and sometimes to a sore. I may be right or may be wrong, when I say that the application of cold water to parts similarly affected, is just as much entitled to the term fomentation, for certainly it is applied the same way and for the same purpose, namely, to allay irritation in the sore or sprained part; and it has, from my own

experience, proved to have a much better effect, and in as short a time. Cold, applied, has an effect to brace, strengthen, and give tonicity to relaxed sprains and sores. Warmth has an opposite effect, *i. e.*, to relax and debilitate. In foot diseases, warm water will be preferable for softening the horn. Where warm water is used, the case should be treated afterwards by cold fomentations. A good way to apply cold water is by means of wet woollen cloths wrapped loosely around the parts, and wet every hour or so before the skin becomes warm. At night take all the cloths off: this will prevent scalding, and falling off of the hair.

Warm water should be applied the same as cold.

Either cold or warm fomentations should be continued for a time to get their benefits. It will be well to remember, that when the cloths are allowed to become dry, an opposite reaction is immediately set up. Cold is followed by increased warmth in the parts. Warmth is followed by cold. This should be well understood, for in my opinion cold applications, with absolute and entire rest, are the only and best agents for the speedy and sure cure of sprains in whatever part of the legs or body.

Foot Diseases.—(1.) CANKER IN THE FOOT.—Happily, this is a rare affection, because it is not easily managed from the peculiar tendency in the horse's foot to grow and produce proud flesh, which is the essential principle of the affection. Canker in the foot of a horse may be said to be a foot deprived of a part of its sole, in lieu of which a fungus is formed. It is difficult to keep it level with the remaining portion of the sole. Not only so, but we have to change this disposition in the foot to throw out such material, and induce the material to secrete or produce a new sole. This is the difficulty to be experienced in the treatment of this affection. Nevertheless, cases, and very hard ones, too, have been cured, but not in a day, nor a week, but months.

Causes. Injuries to the sensitive sole by nails, bruises, and other accidents, as a piece of the sole being torn off.

Treatment. Removal of any diseased or dead sole, and the proud flesh. For this purpose, the knife will have to be used to remove the dead sole, and, if it be in the hands of an energetic person, the most of the fungus or proud flesh can be taken off in the same manner. If not, get caustic potash, and quickly reduce it to a

coarse powder, as it soon dissolves on exposure to the air Lay it upon the raw surface. This apply next day, if the first application has not removed sufficient or all of it. After the proud flesh has been entirely taken off, or levelled with the sole proper, dress every day with Barbadoes tar, one pound; sulphuric acid, three drachms; powdered sulphate of copper, half an ounce. Mix well, and spread a portion over the sore foot, and over this dressing, a pad of tow or cotton, held firmly down on the padding, so as to produce *pressure*, an important matter in the treatment of canker in the foot. This can be secured by thin pieces of splint from young wood being placed across one another over the pad, and the ends pushed in between the foot and the shoe. By this means, and a little patience, with a little ingenuity in fixing and applying these pads, etc., even very bad cases can be cured.

(2.) Contraction.—This is not so much a disease as it is bad management in the stable and in the blacksmith's shop. Contraction may be said to be an alteration of the shape and structure of the posterior, or back portion of the hoof—a winding in of the heels.

Causes. Want of proper knowledge on the part of the owner or horseshoer in not knowing the difference between the foot that would require a piece added to it at each shoeing, and the one that requires a large portion taken from it, so as to insure elasticity and expansion. A foot strong and inelastic, and unyielding to the weight of the animal, is the very first foot to become contracted. I know flat, weak-footed horses travelling sound for ten or fifteen years without in the least being contracted. So long as we have strong-hoofed horses, and shod with an inflexible iron ring to prevent wear and tear, and the blacksmith neglects to take off of each hoof at the shoeing as much horn as the horse would have worn if he had been in the natural state and not shod, we will have contraction.

Treatment. Cut down the hoof and shorten the toe, and make the hard and inelastic foot one that will expand at its heels every time the weight of the animal puts his foot to the ground.

One-sided nailing is an excellent preventative as well as an assistant in the cure of contracted feet. What is meant by one-sided nailing is, that nails are to be confined to the outside toe of the

foot, so as to allow free expansion for the heels. This cannot be done with a shoe being nailed on by nails placed at each side. To illustrate this point, place a small horse-shoe flat in the palm of the hand with the fingers close to one another; then tie, with a piece of cord, the little finger to one side of the shoe, and the thumb to the other side; then you will realize to what extent you can expand the fingers so secured. So it is just with the foot of a horse with the shoe nailed on at each side. Remove the cord from one finger, and the whole hand is free to expand. So likewise the foot of the horse by one-sided nailing.

(3.) Corns.—This is a red spot on the inner portion of the heel of the foot, causing lameness, and consists of a bruise from the shoe pressing upon the part, the shoes having shifted from their proper position, or never having been placed there. In general, the production of corns may be laid to the charge of the horse-shoer, and sometimes to the owner allowing the horse to go long before the shoes are removed, or before the foot has grown from the shoes. Corn is an analogical term, although bearing no resemblance to that well-known affection of the feet of man.

Treatment. Remove the corns by cutting them out; then apply a few drops of commercial sulphuric acid to the part. Shoe the horse sufficiently often to insure even bearing to the shoe upon the wall *only* of the foot.

(4.) False Quarter.—This is a term applied to the horn or portion of the hoof, which overlaps or bulges out from the line of the second portion of the hoof.

Causes. An injury to the coronet or ligament, which secretes, or from which the hoof grows. This causes an alteration of the horn of the hoof below, corresponding to the extent of the injury.

Treatment. As there will be an enlargement, more or less, remaining after an injury to the coronet, little will be required to be done, but to keep the horn as level with the hoof proper as possible, in order to make it look less of an eye-sore.

(5.) Inflammation of the Foot.—(See Founder.)

(6.) Pricks.—Pricks may occur in the act of shoeing, or from a nail being picked up on the street, and from other hard-pointed substances.

Treatment. Pull the nail out, and poultice the foot for twenty-

four hours; then make an opening through the horn, over the place where the nail went in, so as to allow the pus to escape. For, if this be not done, and the pus is left in the foot, it will in a few days, and at a great expense of suffering to the horse, break out between the hoof and the hair, constituting quittor. After an opening has been properly made, drop five drops of muriatic acid into the hole once a day, for a day or two. Poultice every second night or day and not oftener. A healthy hoof can be poulticed off by constant application.

The horse can go to work as soon as he can step on the ground firmly and without lameness. Remember, that in all cases of pricks and other injuries which end in suppuration, as pus in the foot of a horse, make a thorough opening so as to allow the pus to escape, and no more trouble need be apprehended; except the nail has entered into one of the tendons of the foot, in that case no pus will be usually formed, the majority of cases ending in locked-jaw (which see). Where pus is formed after pricking, no locked-jaw follows; it is in those cases only where pus is not formed that locked-jaw may be expected.

(7.) Bruises of the Foot.—(Treat as for Prick of Foot.)

(8.) Sand or Quarter Crack.—This is a crack or split in the hoof, usually on the inner side of the fore foot, although splits and cracks occur in all places, and in both fore and hind feet.

Causes. A brittle condition of the hoof, from the want of sufficient moisture. In some cases the horse does not stand square upon his fore feet, thereby causing undue weight to fall upon one of the sides of the hoof and causing it to crack.

Prevention. Apply to brittle feet equal portions of the oil of tar, and cod liver oil, whale oil, or any fish oil well rubbed in with a brush to the hoofs a few times a week; and occasionally apply wet cloths to the feet in the summer season. In winter the feet are better supplied with moisture.

Treatment. Rasp the edges of the hoof thin, the nearer the crack the thinner the horn should be made; this can be filled up with shoemaker's wax. After the horn has been properly thinned a piece of the wall of the hoof, for about half an inch on each side of the crack, is to be cut out to prevent any bearing of the shoes upon it, thereby preventing the constant opening, shutting and

sometimes bleeding from the crack. To prevent, or rather to cause the new horn to grow down whole and without a crack in it, a piece of iron is to be placed in the fire and made red hot, and then applied, just for a moment, flat on the hair at the head of the crack sufficient to make a scab. This will insure a solid growth of horn. Promote the growth of the horn as speedily as possible, to facilitate the cure; a strap is used by some round the hoof to prevent opening of the crack.

(9.) Navicular Disease.—This is a disease of a bone in the foot of a horse, a serious disease, and often very obscure in its symptoms, altogether depending as to the advanced condition of the disease. Happily, however, it is scarcely met with, and then only in the common hack horse. It consists of ulceration, of various degrees, on the surface of the navicular bone within the foot.

Causes. Hard and constant work upon streets paved with stones. Slight inflammation neglected and the horse not laid up until it gets well, and then inflammation increasing, until it ends in ulceration of the bone.

Symptom. Obscure, or at least very like many of the symptoms similar to other diseases of the feet and legs. It is chiefly determined by the undue heat in the foot, and by the fact that no disease can be detected elsewhere or of a different kind. In lameness of other portions, not in the foot, we have heat and *swelling*—the hoof or foot of the horse cannot swell. It is a box, and we cannot see into it to examine its contents and condition.

Treatment. Incurable, although much can be done to relieve the pain by the application of moisture, poultices, and occasionally placing the hoof in warm water to soften and relieve pressure. Some have recommended a blister round the coronet. I cannot see on what scientific or other grounds it will do good. In well-established cases, and in good strong feet, the division of the nerves which run down on each side of the leg and into the foot, will relieve the pain and the horse will go well for years. But unfortunately many cases so operated upon have lost their hoofs by falling off, which have been unjustly laid to the operation. The cause of this is not so much in the operation as in the operator having no judgment as to the kind of hoof, and whether the op-

eration would be successful or not. It would be obviously improper to recommend the operation upon a flat-footed horse, as the animal deprived of pain would let his thin soled foot come down to the ground with great force and weight, thus injuring the whole structure to such an extent, that suppuration takes place and ultimately the sloughing and falling off of the hoof.

(10.) Seedy Toe.—This is a name given to a split in the centre of either fore or hind foot, extending a little way up from the point, or it may be up to the hair itself.

Causes. The same as those producing sand-crack (which see).

Treatment. In bad cases, a clasp or plate of iron secured by short screws. In simple crack or split from the toe upwards, cut off all communication of the sound parts with the cracked or split portion. For this purpose a three edged file will be a good instrument for making the division. At each shoeing the split portion will gradually become less or shorter.

(11.) Pumiced Sole.—This name is used or applied to the sole of a foot, which is convex instead of concave; that is, instead of the nice cupped foot, the bottom of the saucer is presented.

Causes. The result of bad or severe cases of founder, where the coffin bone is let down upon the sole, and causes its descent or convexity.

Treatment. This is merely palliative and is to be done by placing a shoe upon the foot that will insure and protect the sole from the ground.

(12.) Thrush.—A diseased condition of the sensitive frog of the foot, and from which a stinking fluid is discharged, which is familiar to every person who is among horses.

Causes. Too much moisure to the foot, as from animals standing in their own excreta, or from wet stabling, the frog becomes perverted, and deteriorating, and secreting, or discharging a blackish color, and otherwise nasty fluid. It sometimes accompanies navicular disease.

Prevention. Dry stabling, a stall having sufficient inclination or drainage to carry off the fluids. Cleaning the stable regularly.

Treatment. A few drops of muriatic acid forced into the centre of the frog once a day for a few days. Keep the stable and stalls dry and clean. A few doses of the sulphite of soda in half ounce

doses, once a day, for a few days, will do good by its alterative and puritive effects upon the system.

(13.) Tread.—This is, as its name indicates, a contused bruise inflicted on the coronet or immediately above the hoof by a tramp of the shoe on another foot, or even by another horse. Keep the wound clean, and apply the tincture of myrrh and aloes daily.

(14.) Quittor.—This is a serious and painful disease of the foot, of the same nature as poll-evil and fistula in the shoulder; it is known by a large swelling around or above the hoof, or where the hair joins the hoof, which soon breaks and discharges pus.

Symptoms. Horse off his feed. Considerable excitement and fever. Holding the feet off the ground, and very painful. A swelling soon shows itself at the coronet, and in a few days breaks and discharges pus. After this the horse will resume his feed, but will not make very free with his foot, which will be better to-day and worse the next day, depending upon the discharge of pus from the foot.

Causes. A prick from a nail, a bruise on the sole, a suppurating corn, or sometimes from a sand crack taking on suppurative action.

Treatment. The great secret of the treatment of this disease, is to make a free opening from the bottom of the foot. When this is done at once, you will be greatly surprised to see the swelling go away as quickly as it made its appearance, and if the swelling has broken, it will soon cease to discharge when the opening is made from below, or at the bottom of the foot. Having effected this purpose of an opening, get a small syringe and inject into the opening above, if there be any, and if not from the opening below, a mixture of the sulphate of zinc, two ounces; rain water, eight ounces, once in the day. If the shoe has been taken off for the purpose of making the opening, have it put on again so as to hold some soft stopping in the sole to keep it soft. Cow dung is as good, if not better, for this purpose, than the best of costly flax-seed. Never, in cases of this disease, apply poultices around the whole of the hoof, as in that case the hoof may fall off. Healthy hoofs can be poulticed off. Whatever poultice, it must be applied to the sole. If no opening has been made from below, drop ten

drops of muriatic acid into the opening above once in the day, for a few days. This will destroy the disease.

Founder.—(1.) ACUTE FOUNDER.—Every school-boy is familiar with the name of founder when applied to a lame horse, but few horsemen ever comprehend the nature and seat of this affection. Founder in all its forms is inflammation of the laminæ or leaves, which dovetail into each other, and bind the sensible and insensible portions of the foot together. Hence, it is called by some learned persons in diseases of horses *laminitis*, by adding the Greek word *itis*. Founder is again called by some persons fever in the feet. However, as to names, the disease is of frequent occurrence, and when left to itself, destroys many good horses by leaving them ever afterward sore and tender in *front*, as the horsemen have it.

Symptoms. The horse will scarcely move; stands upon his heels, with fore feet and legs stretched out as far as he can get to throw the weight off them. Thus, to all appearances, making the animal hollow in the breast, which appearance has given rise to the idea that the horse is chest-foundered. The hind legs are brought far in under the belly. The head of the horse is erect and high. Fever and constitutional disturbance are very great. The horse is extremely excitable, and breathing fast and laborious. Altogether, the poor suffering horse is the very picture of distress and disease.

Causes. Giving cold water when overheated, and tired from overwork. A tendency in the feet to take on inflammatory action. The animal not in proper health or condition for performing heavy or fast work.

Treatment. Place the horse in a wide and airy stall, with plenty of good straw for bedding to encourage the horse to lie down, which will relieve him very much. Indeed, so much is this the case, that it has been recommended that every foundered horse should be forcibly thrown and kept down, till the active stage of the disease has passed off. This, however, I do not advise, as the horse is excited enough without increasing it by throwing him from his feet. Rather give good bedding, and the majority of horses so affected will be ready and willing to lie down of their own accord. After the place is all fixed, and the horse moved into it, give him twenty drops of the tincture of aconite root in a cupful

of cold water, poured into the mouth with a bottle having a strong neck. Repeat the dose every four hours, till six to eight doses have been given. Apply cold ice water cloths to the feet. In a few hours, possibly, the shoes can be taken off. At first, this generally cannot be done, except the animal is down. Care should be taken in removing the shoes, so that every nail is made loose before an attempt is made to pull off the shoes. Have as little hammering on the foot as possible, as it will shake the great and over-sensitive frame. Let the cold water be kept on constantly for the next day, or until the active pain gives way. At leisure, the feet can be pared thin on the soles, so they will yield to pressure with the fingers. By getting the animal to lie down as soon as possible after he gets in; the cold water cloths applied, and the aconite given; the animal in a day or two may be nothing worse from the attack. The longer the animal remains before these remedies are applied, the less likely is he to be free from its effects afterwards. Before the horse is again put to work, be assured he has quite recovered. During the treatment, give plenty of cold water to drink. Never give tepid water to a horse while he is sick from disease. Give grass or soft mashes for a day or two, but do not keep a sick horse too long on low feed, as debility and swelling of the legs and various portions of the body will take place.

Remember. Do not bleed, neither from the neck or foot, nor from any place else in a disease of this kind.

(2.) Chronic Founder.—*Symptoms, Cause and Treatment* will be much the same, only it will not be necessary to push the treatment so far. Principally depend upon softening the horn of the feet, paring the soles of the feet, and a few days' rest. The horse, for a week or two afterwards, should be placed in a stall having six inches of sawdust spread over it, and kept a little moist with water poured over it once in a day. When horses are recovering from acute founder, they also might be placed in a stall so prepared. Clay stalls are objectionable.

Fractures.—This term signifies a broken bone. Fractures are the result of great force applied to the bone, as from kicks, falls, and accidents.

Fractures occur in three forms.

(1.) The simple fracture or break, either oblique, or slanting, or straight across the bone.

(2.) The compound fracture, where the bones are broken in several places.

(3.) The comminuted fracture, where the bones are broken in pieces, and the ends of the broken bones are seen cutting through the skin, and, possibly, severing some of the blood vessels, causing, in many cases, death from loss of blood.

The first, or simple fracture, is the only variety that calls for much notice, as the other forms of fracture, when occurring in horses, are beyond remedy. Simple fractures of the following named bones may, with care, be in a great measure cured, and the animal be made useful for many purposes; as, for instance, it would be obviously wrong to have a valuable mare destroyed, because of simple fracture of one of many bones, as she would be useful for breeding purposes, if not for the farm or the road.

Fracture of the bones of the leg anywhere from the elbow down, except it may be the knee joint, can readily, with a little care and attention, be secured in its place, and the animal be made useful. So also the hind legs from the hock down to the foot. Fractures of the ribs usually get well of themselves, because they are always kept in place. So also of the haunch bone. Indeed, simple fractures of most any of the long bones will unite of their own accord, if the bones are put and kept in their places by proper fixings.

Symptoms. The symptoms of fracture of the long bones of the legs are seen at once by the looseness of the leg, the horse not having the power to move it. The leg can be turned in any direction. The horse is in great pain, excitement, sweating, etc. If there are bones pointing through the skin, the horse had better be shot.

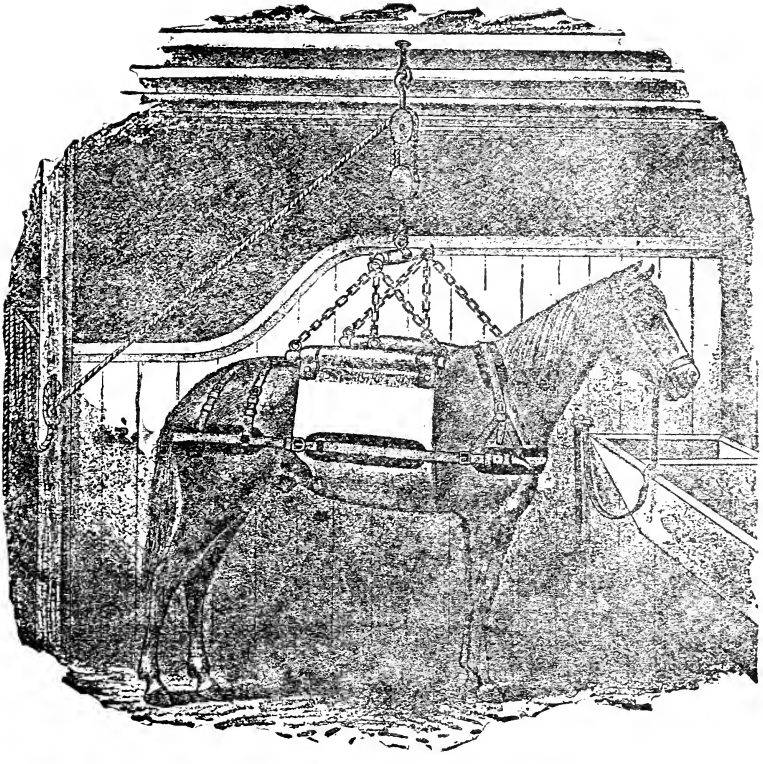
Treatment. Place the horse, if in summer season, in the field, and in winter in the barn-yard, where there is not too much straw to prevent the foot being carried without interruption.

Then give twenty-five drops of the tincture of aconite root every five hours, for the twenty-four hours, to relieve pain, excitement, and fever. Take hold of the broken leg carefully, and place it in a position as near like the other leg as possible, not only in shape, but in actual length by measurement, for it is the neglect of this that some legs are left shorter and some longer after fractures. The

whole position of the leg being got at, apply a good coating of tar to the leg, around, above, and below the point of fracture. Then wrap the whole leg in oakum, coarse tow, or carded cotton. Over this, place broad pieces of boards, like shingles, on the sides and front of the leg, and fill all unevenness with the tow or cotton, so the splint or boards will lay flat on the leg. Secure the whole by careful tying with broad strings or soft cords. The great secret in the successful treatment of simple fractures of the bones of the legs, is the fixing of the leg, so it cannot move until they have united. Feed the horse well, and see every day that the splints on the legs are not loose. Never sling a horse from his feet in cases of fracture, for it will be regretted. If the horse is to be kept in a stall, make a hole in the floor of the stall, underneath the foot of the broken leg, so that he can stand with the leg at full length. Bear in mind, no horse will put his foot to the ground until he is able to do so; therefore, leave everything to the broken legged, except the matter of securing the broken bones in their place. And by giving him his feed, he may be safely left to himself, and nature will do the rest for him.

Fracture of the Hip or Pelvis.—*Symptoms.* The horse is extremely down in one of the hips, with a peculiar loose motion of the hind leg, almost giving way every step the horse makes. There is no disease this can be mistaken for in the hind leg or hip. This fracture is produced in a moment; and even whilst the horse is trotting, he will stop all at once as if he were shot. Fracture of the hip, I say hip—so that the unprofessional reader will better understand—but it is the bone of the pelvis. The mere name will not amount to much, for the treatment is: Let it alone, and it will get well in three months of itself without any interference from medicine or art. Turn the horse out for a few months, either in pasture or in the barn-yard, and give him plenty to eat.

Fracture of the ribs will require no treatment, except it may be a few days' rest. Sometimes a swelling may be seen on the side of a horse having a broken rib, in a few days after the accident. It may form an abscess; if so, have it opened to let out the matter; and if it should not become soft and hold matter, let it alone, as it will do little harm; or, make the application for a few times,



THE SLING IN USE.

say once a week for three weeks, of the ointment of iodine. (See Prescriptions and Medicines.)

Fractures of the simple kind take place in various parts of the body, and when such is the case, and they do not interfere with any action or function of the body, they can be assisted only in so far as bandage and splint are concerned, so as to secure the ends in proper position. This will require some ingenuity, and cannot be described, as a bone is not always broken at one place, nor is it always of one set kind of break. The means will on these occasions have to meet the ends required of them in the best way possible. Sometimes pieces of broken bone will have to be taken out, where the bone has become detached. If this occur in the bones of the leg, of course the horse had better be shot. Where small pieces of bone become loose, it is usually in some of the flat bones, as the shoulder blade and the lower jaw bone, from kicks from other horses.

Fractures of the teeth take place often, and where they are very loose in the head, they had better be taken out altogether, and rasp the sharp points of the broken ones with a file or rasp, to prevent cutting the mouth when the horse is chewing.

Fungi as a Cause of Disease.—Much has been said and written of late years of minute fungi being the cause of diseases. Dr. Lessaure has made experiments with pencellum, etc., and concludes from them that fungus is not a cause, but an accidental presence. In contradiction of Hallier, and I might truthfully say of many other persons, it has been shown that nothing is to be gained in the study of the causes of disease by cultivating microscopic fungi, and it cannot be regarded as a contagious element until we have succeeded in producing disease from art.

Frost Bites.—The results of frost bites may be called chilblains, which again give rise to extreme swellings of the heels and back part of the hind legs, until finally the skin gives way, terminating in sores and ulcers that may at once be taken for scratches. The sores are deeper in such cases than in scratches or greasy legs, but closely resemble *Phagadena* (which see). In the worst cases we have seen, the skin and flesh sloughed, followed by gangrene or mortification of the leg, and death of the horse from the poison thus produced and absorbed. We have seen several cases of frost

bites in different stages and severities, and which, in all cases, was the result of broken and imperfect doors facing the northern exposure, and behind which stood the hind legs and heels of the horse.

Treatment. If the legs be found, on opening the stable, to be swollen and painful, rub the parts with snow or ice-cold water, then follow *gradually* with warmer water, a degree or two above freezing; and when warmth is restored, bathe with weak spirits. When the legs and heels break into sores and ulcers, apply, twice daily, carbolic acid (in crystals), four drachms; olive oil, four ounces. Mix.

Gangrene.—This is a name applied to, or is synonymous with, mortification or death of a part, and is characterized by a livid or black color. Gangrene is attended, or is ushered in, by a sudden giving way of pain, which has often been mistaken for recovery. When gangrene of an outward or external part takes place, there is a change in the condition of the part, it assumes a different aspect, the swelling subsides, and upon touching the part a crackling sound is produced, owing to the evolution of gas.

Gastritis Mucosa.—This is a new name to many persons, even well informed in diseases of horses, notwithstanding it is a very common one in the spring of the year, assuming always an epizootic form, and being closely allied to the epizootic catarrh, sometimes called typhoid influenza. (See Influenza.) The chief difference in the symptoms between the two diseases, is the absence of a cough, which is always observed in influenza. The one disease attacking the lining membrane of the windpipe; the other, the mucous membrane of the stomach and bowels, or, in other words, the digestive organs, more than the respiratory. Gastritis Mucosa is a fatal disease, if treated by low diet, bleeding, blistering and physicking, because it always assumes a low standard of vitality, or great weakness. Hence the horse so affected, and so treated, has no chance for his life whatever.

Symptoms. As before stated, the horse has no cough, and the breathing is not disturbed. The breath and mouth are not hot or dry, but often the mouth is slimy, and to such an extent that it looks as if the horse were salivated. The legs soon swell, or become rounded, or filled, as they are often called. The swellings

are not inflammatory nor painful; they contain lymph, or plastic matter from the blood, which disappears as it came, when the strength of the horse gets up again, and the disease subsides. The appetite is entirely suspended from the commencement of the disease. There is one of the many symptoms, which is never absent in this disease, and is very characteristic of its name and seat, and this symptom is that the fæces or dung is small, or in pellets, and covered with slime, and portions of the mucous membrane of the stomach and bowels, or what the stable-man calls "very feverish." The prominent symptom of this disease is great weakness, and this is the case almost from the first moment of the attack.

Causes. The cause of this as well as of all epizootic diseases, is involved in not a little obscurity, and to get out of this state of ignorance and uncertainty as to the cause, we are graciously pleased to call it *atmospheric.* This atmospheric influence may be either electric, a poison, or a chemical element, capable of altering or changing the various parts or portions of the body most exposed to its subtle influences. However, this disease, as before stated, is peculiar to the spring of the year, commencing as the hermetically sealed earth begins to open its pores to the rain and sunshine of spring. May there not be deleterious emanations from the earth, or at least after great frost or snow, is there not during the process of thawing a *colder* air or gas given forth from the thawing process, than the animal is breathing a few feet higher up from the ground? And in connection with this condition, we have in horses, at least, a want of their usual protection, for with the warm sun of spring, the animal throws off his hairy coat, thus as it were unnecessarily exposing himself to these insidious causes of disease.

Treatment. When cases of this and other diseases of the same type (gastritis mucosa) first came under my care, I treated upon different principles and with different medicines than what are here recommended. I look back with extreme dissatisfaction on the false doctrines and false teachings of the books and the schools which have led many inquiring minds astray since their day of teaching commenced. The treatment now recommended is sound and successful, and in a very short time the horse will be at work again, as if nothing had been amiss. The first day of the disease,

give, every four hours, twenty drops of the tincture of aconite root in a little cold water; next day, give the tincture of nux vomica in fifteen drops every four hours, in the same way, till the horse is well, which usually will be about the sixth or seventh day, and sometimes even sooner. If, however, the case does not improve, and the appetite is not good, give powdered carbonate of ammonia and gentian root, each three drachms to a dose, morning, noon, and night, in addition to the tincture of nux vomica. These medicines will have to be mixed with cold water, and the horse drenched out of a strong-necked bottle or ox's horn cut slanting at the mouth. Keep the ammonia in a bottle tightly corked till it is used, as it loses its strength by exposure to the air. Let the horse have as much cold water to drink as he wants; and for this purpose a bucketful should be kept before him. Pure air and good ventilation should be insured to all sick horses. Green, or soft feed should be given from the first day, if the horse will eat it. Green feed all the time of sickness will be of advantage, but oats will have to be given in addition to support the strength and vital powers of the system, to enable him to throw off the effects of the disease. Such, then, is the manner of curing a disease which has destroyed many horses, even when treated by men calling themselves veterinary surgeons, or at least horse doctors. (See Influenza and Rheumatism.)

Glanders.—The following synopsis of a lecture delivered by Dr. McClure published in the *Evening Bulletin* will answer for the history and nature of the disease called glanders. The treatment will be made more plain for non-professional readers.

Dr. Robert McClure, Veterinary Surgeon, delivered a very interesting lecture at the Veterinary College. His subject was "Glanders in Horses." He said: Glanders is a disease dating from the time of Xenophon, or four hundred years before Christ, and we are assured by Hippocrates (ruler of the horse), that confirmed glanders was incurable, and that it was then known by the name Profluvium Atticum. Veterinary surgeons recognize two varieties of *Equinia* in the horse, viz.: *Equinia mitis*, contracted from horses with greasy heels (*Paronychia Equi*), and *Equinia Glandulosa*, a dangerous disease, and readily communicated to man. Glanders is unknown at the tropics and at the poles, and is not seen where

struma is not a disease of the people. It is a domestic disease. The assignable causes are many, among which may be enumerated starvation, filth, and debilitating diseases, as strangles, catarrh and lung-fever, or, indeed, any disease capable of generating pus; and this pus being absorbed into the general circulation, thus forming a Ferment, a Zumin, or a Leaven, as the Bible has it, within the blood, the effort of nature to get rid of this offending matter is seen in the ulcerations of the lining membrane of the nose. The recent experiments of Professor Giovanni Polli, of Milan, seem to corroborate this view, as he has produced glanders and other Zymotic diseases in seventy dogs, by injecting into their blood in some cases fetid bullock's blood, pus, and glandered products, and neutralizing the ferment so set up by the administration of an alkaline sulphite—a new intero-chemical doctrine—on the principle of arresting the vinous fermentation set up in a vessel of cider by adding to it a preparation of lime. The experiments of this distinguished professor, enable the veterinary surgeon to extend his usefulness, and the domestic physician to snatch many a useful life from an early grave. How many brave men have stood the storm of battle in the late war—were admitted to the hospital with perhaps a shattered bone—amputation was performed, the case did well for a few days. The kind-hearted surgeon saw a change for the worse: appetite gone, the rigor and chill supervened till it was too plainly seen that the pus from the stump had been absorbed into the blood of the unfortunate man; fermentation was set up, and death staring him in the face, there was no power to save. The discovery of a ferment and its antidote have changed the scene from death to that of life. So, likewise, the veterinary surgeons, however ignorant and slow some of them are to see and understand, it will enable them to preserve the life of many a useful animal to its owner, thus adding very materially to the happiness and prosperity of this great and prosperous people.

Glanders are recognized by ulceration of the lining membrane of the nose, or the formation of pustules, and commonly situated in the *septum nasi.* These pustules soon ulcerate and discharge pus of a greenish color, rapidly drying up when spread over the nostrils, and sinking in water, owing, as is supposed, to its con-

taining no oil or pus cells, but principally albumen. There is one phenomenon never absent in this disease, and that is the enlarged gland under the jaw; hence the common name of the disease—glanders. There are, said the lecturer, many wrong ideas entertained, not only in regard to the contagious nature of the disease, but also in regard to its incurability and even fatality. Glanders is no more contagious than the heavy, stinking discharge from the nose of some horses with catarrh, as the pus of an abscess on the nose of a horse with a cold, when introduced into the blood of healthy animals, will produce a ferment—which explains the reason why a cold in horses terminates in glanders; it is the absorption of the pus. This will be readily understood, when it is said the horse is running or bordering on glanders. Horses affected with chronic glanders will live and work for years, which fact, being well known, has caused dissatisfaction with local laws, prohibiting the use of glandered horses.

Fresh specimens of sections of the lungs, nose, and other portions taken from a glandered animal, were placed at the disposal of the lecturer for the purpose of illustrating to the audience, showing the morbid changes effected by the disease. At the close of the lecture the doctor showed the manner of generating nascent hydrogen for the purpose of detecting the presence of the alkaline sulphite in the secretions of horses, under its effects, for the purpose of the cure of glanders. Before touching upon the plan of treatment, the reader is referred to the article *Farcy*.

Treatment. The proposition of restoration in a disease of this kind, is the destruction of the ferment, the removal of its products or effects, and the improvement of the bad habit of body by enriching the blood.

To remove or neutralize the ferment or poison, give one-half to one ounce doses of the sulphite of soda at night, in cut feed, for several weeks, and five grains of the powdered Spanish fly along with it, which will act not only as a powerful tonic, but as an agent whereby the product of the disease will be removed from the body of the animal by the kidneys. This treatment will not interfere with the other medicine, which is powdered gentian root, three drachms; powdered sulphate of copper, two drachms. Mix

these articles, and give the whole for a dose, and give one dose morning and mid-day.

These medicines will have to be continued for a long time, not only to cure the disease, but to improve the health. The horse must be well and highly fed, and removed from other horses while the treatment is going on. Change the feed often, so as to get all the elements that the blood requires, and to keep up the appetite, for if the appetite fails, no cure can be made.

Remember. Glanders associated with tubercles of the lungs, cannot be cured, and it then partakes rather of the nature of consumption than of simple glanders with tubercles, which is easily cured.

Glass Eye.—(See Eye Diseases.)

Gleet—(*Nasal.*) This term is used to denote a thin, transparent discharge from the nose in case of coryza, and as a sequel to catarrh and cold in old and debilitated horses. Whilst there are no ulcers on the lining membrane of the nose, or no enlargement of gland under the jaw, the case may be dismissed as simple gleet, which can be readily cured by good feeding and a few tonic powders, such as powdered sulphate of copper, three ounces; powdered gentian root, four ounces; powdered Spanish fly, one drachm. Mix and divide into twelve powders, and give one powder once in the twenty-four hours. These powders will last two weeks, and can be renewed if necessary. Give the powders in large bulk or cut feed, so as to protect the coat of the stomach from the effects of the Spanish fly.

Granulation.—This means the little red portions of flesh, which grow in and fill up holes made by wounds. Sometimes these grow too fast; then they are unhealthy, being soft, grow beyond the edges of the wound. To prevent this, sprinkle a little powdered blue-stone, or a little sulphate of zinc, and the wound will soon heal level with the surrounding surface.

Gravel in the Foot.—This name conveys an impression that sand or gravel has got into the foot, which is often the case from cracks or other openings in the foot, whether from above or below. Wash out the sand, if possible; if not, remove some of the horn, and wash out well, and fill up the hole by shoemaker's wax applied hot, and smoothed over by the hand previously wet, so

the warm wax will not stick to it. If the opening be in the sole, shoe with leather soles, tar and cotton, until the hole has grown out or closed up.

Grease.—This is a disease of the heels and legs of horses, characterized by an unsightly condition of the parts. The whole being the result of suppurative inflammatory action of the skin and heels of the hind legs, usually, but sometimes of the fore ones; is more common in coarse-bred western horses, and heavy breeds, than in well or fine-bred horses.

Cause. Sudden changes of the temperature of the earth, whether from heat to cold, or from wet to dry. This disease always follows sloppy or wet streets, stables or lands, producing a relaxed condition of the parts from too much moisture.

Treatment. Keep the legs clean and dry, and apply a mixture to the heels twice in the twenty-four hours. Water, one pint; sulphuric acid, two drachms; corrosive chloride of mercury, one drachm. Mix, and shake up before using. Many cases are readily cured, by simply keeping the heels clean, and anointing with glycerine, or lard, having no salt in it. It must be confessed by everybody, who has had any experience at all in the treatment of this disease, that there is uncertainty of an early cure; some cases will be cured in a short time, and in others it would seem that the discharge would never dry up and be healed. For cases that prove obstinate, the following plan will effect a cure, when other vaunted remedies have failed: Take one box of concentrated lye, and dissolve it in two quarts of water, and bottle up for use when wanted, in the following way: Pour a wine-glassful of the solution of lye into a small bucket of cold water, and wash and bathe the heels and legs for half an hour, morning and night. A great change for the better will be seen in a day or two. This wash seems to have the power of relaxing and softening the skin, and at the same time causes the legs to sweat greatly. Dry them as often after the bathing as you like, there will pour out great quantities of moisture from the skin as soon as you have done.

Shot of Grease.—This is a different disease from the one described, from the fact that it attacks only one leg, and that one of the hind ones, and comes on in a night, without any preceding symptoms whatever, and hence it is called a shot of grease. There

is no cracking of the skin of the heels or legs, but it remains whole and unbroken.

Cause. Robust stamina, or too fat and full of flesh, and to get rid of this superfluity, plastic lymph is thrown into one of the hind legs, which causes swelling of the leg to an enormous size. If this material were thrown from the blood into one of the fore legs, where the nearness to the heart increases the activity of the capillary circulation, matter would not remain as it does in the hind legs, which are so far from the centre of circulation. This disease is not unlike the *phlegmassia dolens*, or milk leg in the human family.

Treatment. If the disease be observed early or before the leg becomes hard, take about *one* quart of blood from the neck, and give slop feed, that is, bran with plenty of water in it. Also, give one ounce doses of the sulphite of soda once in the day, for a few days, and bathe the legs three times in the day with the same solution of concentrated lye, as is recommended in grease (which see). If the swelling does not lessen in two days after these various agents have been employed, then incisions of an inch in length, through the skin, will have to be made for the purpose of letting out the imprisoned fluid before the arteries of the legs have become *plugged* or filled up, which constitute the thick or fat leg so often seen in horses in large cities. In addition, the leg will have to be bandaged pretty tightly with a broad bandage, and be still bathed three times in the day with the solution of concentrated lye. Many good horses have been rendered of little value from want of a knowledge of this disease and its proper treatment.

Gripes.—This name is sometimes applied to colic (which see).

Grogginess.—A term meant to convey the idea that the horse does not travel very steady in front, from contracted or bent legs at the knee, or from soreness in the feet from a previous attack of founder in the feet (which see).

Grunter.—This name is applied to horses that give forth a grunting noise. One condition giving rise to wheezing, roaring, whistling, piping, and rattling, will, with slight modification, produce a grunter.

Observe. If the collar is not too tight on the neck, interfering with the free passage of air in and out of the windpipe.

Causes. Generally from some thickening of the glands of the neck, or of the windpipe—the effects of bronchitis or distemper, not treated, or improperly treated, in not supporting the strength; whereby all thickenings are taken up, or reduced and even prevented.

Gullet, Obstructions in the.—(See Choking.)

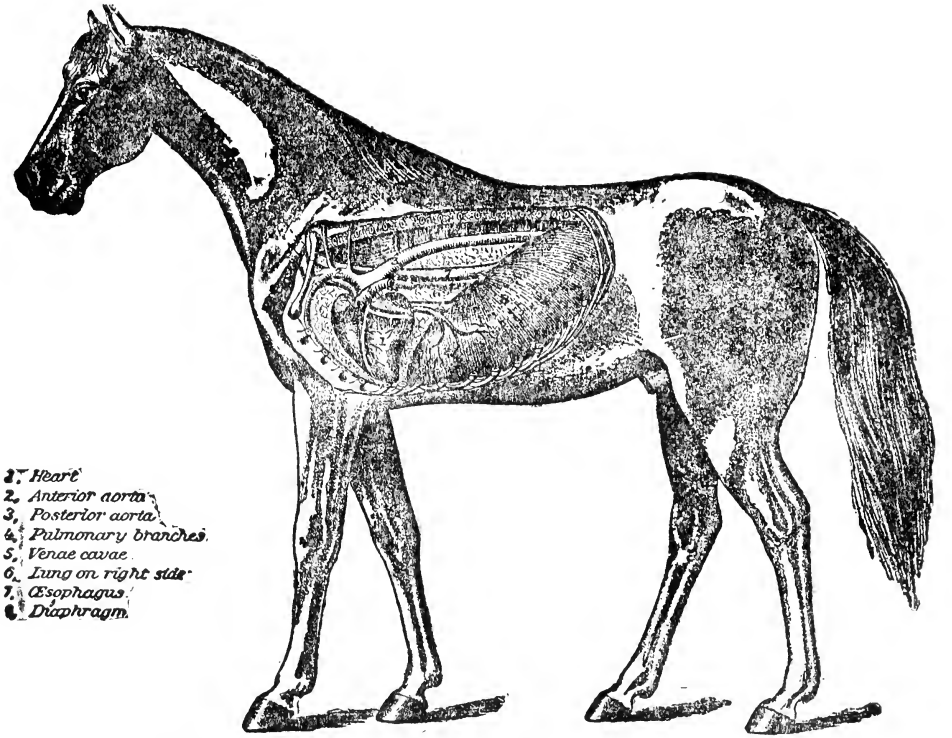
Gunshot Wound.—This is, excepting in times of war, a rare occurrence, and the treatment consists in extracting the bullet, and healing the wound as for an ordinary sore. The bullet is extracted by an instrument called a Bullet Forceps. The instrument grasps the bullet, and extracts the ball.

Gutta Serena.— (See Eye Diseases.)

Heart, Disease of the.—Of diseases of the heart little need be said, and as little can be done in the way of cure; so all I propose under this head is merely to name a few of the altered conditions of the heart, which are all embraced in the sweeping term "Heart disease."

(1.) Enlargement of the heart.
(2.) Wasting or shrinking of the heart.
(3.) Foreign bodies of the heart.
(4.) Fatty degeneration of the heart.
(5.) Inflammation of the heart.
(6.) Ossification of the heart.

Heaves.—This is a term in frequent use, but not so well understood as it ought to be, seeing its importance as to the proper value of an animal. Heaves, then, may be defined as a difficulty in breathing, whereby the value and usefulness of the horse is seriously impaired. There is every degree of intensity to be seen in this disease. Some animals are so seriously affected, that it is hard to look at the terrible efforts made in the act of respiration. The deep and not suffered-to-be-completed respiration tells the tale of great asthmatic effort and oppression. In others, it is so slight that only experts can observe it; not from the quickness of breathing, nor yet from its depth, but from a peculiar double beat or hitch, differing from all other varieties of breathing, either of fever, inflammation, or debility.



INTERIOR OF CHEST SHOWING POSITION OF HEART AND DIAPHRAGM.

Causes. Debility of the parvagum nerve; for if this nerve is divided or cut in its course, heaves, or broken wind, is set up at once. The real condition of this nerve, which gives rise to heaves, is not at present known; and it is difficult, in many cases, to trace and distinguish any alteration of the nerves, as they may retain their color, yet their influence may be greatly impaired. For two reasons I have said debility. First, because, if it was cut, or had entirely lost its influence, the animal would die in forty-eight hours. Second, because, by the administration of powerful tonics, the symptoms of the disease are greatly relieved, and in some cases they entirely disappear.

Treatment. Horse-dealers, in order to allay the symptoms, that is, the peculiar breathing, give an ounce each of powdered sulphate of iron, gentian and ginger root. It is the largeness of the dose that is given, and repeated for a few days, that imparts a tonicity to the nerve. Although I have here spoken of this matter, I do not wish to be understood as advocating such treatment, nor as attempting to cheat or deceive any one; but the large dose of iron meets my decided disapproval, as being highly injurious to the horse. The treatment, whatever that may be, to do good permanently, must be by a gradual and progressive improvement. Five grain doses of arsenic, given once in the twenty-four hours for two weeks; then, after a week's intermission, commencing as before, will soon cure many cases. Give the animal feed in small bulk. Use as little hay, or rough feed, in large bulk, as possible. Improve the condition of the horse by every way or means, and you will relieve the animal.

Heat.—General heat of the skin indicates fever; local heat, inflammation.

Hepatic Diseases.—(See Liver, Inflammation of the.)

Hernia.—This is a name given to ruptures. (See Ruptures.)

Herpes.—A name used in skin diseases. (See Mange and Skin Diseases.)

Hereditary Diseases.—No one, of any observation, can deny that hereditary influence exists in the production of disease. This influence must not, in the production of disease, be considered as invariably reliable. The fact of horses or mares having a disease, is no reason why their young will have the same disease, also. It

was through change or alteration of structure, action or function, that existed in either of the parents, that disease fastened upon them, and these same forms which existed in them are likely to be transmitted to the offspring, thus carrying the various formations of structure, which will ultimately, in all probability, produce the same disease. A great number of the affections which are usually styled hereditary do not make their appearance until years after their birth, because it required time and work to develop them. Few persons would expect a horse with cow hock (which see), to become curbed without work, as a secondary cause. There is one other point which is worthy of remark, in speaking of hereditary diseases, which is that many animals, after being poorly bred, have been badly fed and cared for; whereas if good feeding and care had been bestowed upon them, it would have gone a long way in lessening the certainty of developing hereditary diseases in them and their offspring. This is every day being illustrated in the family of men. There are several rules laid down to be observed as measures to prevent and modify conditions which result in producing diseases of hereditary predisposition. And there have been receipts found in the temple of Æsculapius, and said to be in the handwriting of Hippocrates himself, for the purpose of mitigating the hereditary conditions, which are so often seen in the human family. Although these rules cannot, in all cases, be applied to animals, nevertheless much can be done. The better way will be to avoid breeding from diseased animals. So long as like begets like, so long will we have hereditary diseases among horses.

Hide Bound.—This, properly speaking, is not a disease, but the symptoms of a bad condition, 'out of sorts," debility, etc.

Treatment. Feed in large bulk, mixed feed—cut hay, corn meal, and bran in good proportion—with no more water than will keep the particles together. Give the following powder in feed every night, for twelve nights:—Powdered sulphate of iron, three drachms; powdered gentian root, four drachms. Mix. If the animal is fat and yet hide bound, substitute the following, instead of the above recommended:—Take sulphuret of antimony, three drachms; sulphur in flour, three drachms; sulphite of soda, half an ounce. Mix, and give in one dose, repeating it every night for

two weeks. If in the winter, use an extra blanket. If in summer, give cut grass to eat.

Hip-joint Disease.—Happily, this is a very rare disease in horses, and does not make its appearance so soon as in man. It is always the result of accident or injury, and is a joint affection—not of the muscles, because the mass of muscles are so very great over the hip, that it is not an easy matter to sprain them. I speak of this here, because among horsemen it is a great bug-bear, often occurring in their ideas; whereas in ninety-nine cases out of a hundred of their so-called hip and *whirl bone* disease, the lameness will be found in the hock-joint. Why do they jump at the conclusion that the lameness is in the hip? Because in every movement of the hock-joint, the vibration or hitch is more distinctly seen by the altered action of the muscles of the hip, as when the hock-joint moves but partially, and not completely, it is not so readily seen at the hock as at the hip. Hence, this is but the old adage, cause and effect; in this case the horseman has them reversed. (See Spavin.)

Symptoms. Lowness or falling in of the hip; a peculiar manner of moving, not indicating inability as is seen in fracture of the pelvis bone, but of great pain and difficulty; not yielding or bending low down on that quarter when the horse takes a step. The leg appears shorter, and is placed, when standing, slightly under the body, and not doubled up, or standing upon the toe as is seen in cases of hock-joint disease.

Treatment. Absolute and entire rest for a few weeks. The application of cold water cloths over the hip, taking them off at night, and applying them in the morning again. This will have to be kept up for a week, at least, so that all heat and tenderness will be removed before any irritant can be used to the parts. (Never apply hot liniments to a part already too hot and painful.) Then apply by rubbing with the hand over the parts, every second day, the following: Oil of turpentine, one ounce; oil of cloves, two ounces; creosote, one ounce. Mix. This will not only act as an irritant, but as a powerful sedative to the nerves of the parts, causing relief from pain, so that the animal can be made useful.

Hock, The.—This is an important joint or part of the horse, and is the seat of many diseases, causing lameness. In the

majority of hind leg lameness, the hock is the true situation. This fact is not apparent to the non-professional person, as the hock, while diseased, does not swell so often as other portions of the body or legs when diseased. Bog or blood spavin and thoroughpin, a blind man can almost see. With these exceptions, I say, hock-joint lameness, in the majority of cases, is charged to the hip or somewhere else, simply because persons fail to see any peculiarity, even when pointed out to them. (See String-halt.)

Sprain of the hock-joint is to be treated with cold water cloths, for a few days, and the application of the following, once every second day, for a week, with friction or rubbing: Oil of turpentine; oil of olives; equal parts. Mix. This is a simple, cheap, and good liniment, and will answer every purpose.

Rupture of the internal and external lateral or side ligaments of the hock-joint is occasionally seen, and is caused by a violent slip. The rupture is at once recognized by the loss of power of the horse over the leg below the joint; but can stand on the leg, as if it were sound, and there is little or no swelling—which peculiarities serve to show the difference between a broken bone of the leg and the ruptured ligaments of a joint. (See Ligaments.) The cure is accomplished by absolute and entire rest, with occasional friction with the turpentine liniment, just mentioned above. Be assured of the complete union of the ligaments—which will take place when the horse can bend and properly use the leg—before exercise or work be exacted.

Hooks in the Eyes.—This is a term in use by country folks when referring to the peculiar action of the *membrana victatans* in cases of locked-jaw (which see). Many persons have advised that these useful membranes should be cut out. Nothing could be further wrong than this; for it is merely the effect of a cause. Rather remove the cause, or cure the locked-jaw, and the protruding of the hook or horns will cease. This is the only true plan to adopt.

Horse, Natural History of the.—The horse comes under the division vertebrata, class mammalia, tribe ungulata, order pachydermata, family solipeda.

Horse Fly.—This comprehends the gad or breeze fly, *Gasterophilus astrus.* The spotted horse fly, *G. Equi.* The red tailed

horse fly, *G. hemorrhoidalis.* This last fly deposits her eggs on the lips of the horse, and the former glues them to the hair of the legs. These various eggs are ultimately taken into the stomach, and in one year they have become sufficiently matured that they are thrown out to the outer world to get wings, and finally fly about and propagate their kind in the same manner as the parent stock. (See Worms.)

Humanity to Animals, Hints on.—(1.) Warm the bit in frosty weather, before putting it into the horse's mouth.

(2.) Let the horse lick a little salt from your hands whenever you offer him the bit.

(3.) Never startle a horse by striking him suddenly or unexpectedly. This caution is specially important if he has a blind bridle.

(4.) Uniformly gentle treatment will secure faithful and steady work. Anger, severity, and sudden jerking, endanger your harness, your vehicle, and your life, besides permanently injuring your horse.

(5.) Be well provided with horse-blankets, particularly at night. If you are waiting for passengers, while you look out for your own comfort by a warm fireside, or in thick wrappers, see that your faithful brute companion is also protected from the chilly air.

(6.) Wash the inside of the collar frequently with castile soap suds, and when it has thoroughly dried, gently warm the leather and soak it with oil, so as to soften it. But do not allow any oil to remain on the surface of the leather, unabsorbed.

(7.) If the shoulders are tender, feverish, and disposed to chafe, they should be well rubbed, and afterwards washed with salt water. This should be done after unharnessing, so that the parts bathed may be dry before work is resumed.

(8.) Do not be tempted by extra pay to overload your team. Overloading occasions blindness, spavin, splint, glanders, farcy, and other painful and fatal disorders, and thus risks the loss of your capital, besides injuring yourself by encouraging a cruel disposition.

(9.) See that the harness fits easily in every part, and that the shoes are tight and well put on. If there are chains connected

with any part of the harness, let them be well covered with soft padded leather or fur.

(10.) Let your tones, in addressing the horse, be always gentle, soothing, and pleasant. Pat him often, and encourage every sign of attachment that he gives.

(11.) Every truck, or other vehicle, should have a prop stick hung to the shafts, to relieve the burden of the load whenever the team is standing.

(12.) Curry, rub, and clean WELL, and thoroughly, *at least*, once every day. The effect is worth half the feed. A dirty coat and skin, when the animal is deprived of exercise in pasture, and of rolling on the grass, cannot fail to produce disease.

(13.) Never use a check rein. It is a false taste that thinks a horse more beautiful when his head is fastened in an unnatural position. The bearing rein keeps a horse in a constant fret, makes him restless and uneasy, and often prevents him from recovering himself in case of a stumble or fall.

(14.) Your stable should be perfectly level, or *very* slightly inclined, well lighted, well drained, well ventilated, and well protected from draughts, and from extremes of heat and cold. Keep the crib clean and free from dust, and keep the hay and other fodder as far from the stall as possible, so as to be away from the steam and breath of the animal.

(15.) If you use ground feed, remember that at many of the mills and stores it is adulterated with marble or plaster of paris, or with the sweepings of canal boats and barges. Such adulteration not only robs your animals of nourishment, but produces *stone*, and shortens life.

(16.) If you suspect adulteration, you can sometimes detect it, by heating a portion of the feed to a red heat, in an iron vessel. After the whole has been reduced to ashes, if they contain plaster the ashes will soon *set* or harden, after being mixed with water to the consistency of paste.

(17.) In hot weather, keep a wet sponge on the head of the horse or mule ; cool the mouth and face with wet sponges ; furnish drinking water often, and sponge the legs and such parts as are liable to chafe by perspiration or otherwise; drive slowly, and lessen the weight usually imposed in cooler weather; see that the harness is

not unnecessarily cumbersome and heavy; the discomfort may be materially relieved by taking off the eye-blinds, which are useless appendages, and cause much annoyance to the animal.

(18.) Do not urge your beast beyond a walk when the heat is oppressive; finally, use a head-shelter or awning, constructed of wire and covered with canvas, which can be attached to the animal's head without materially adding weight.

(19.) In icy weather keep your animal sharp shod, renewing the sharpening as often as the shoes become blunt. A few dollars expended in this way will undoubtedly save your horse from serious injury, and, perhaps, from loss of life.

(20.) Standing on fermenting manure softens the hoof, produces thrush, and brings on lameness. Keep the litter dry and clean, and cleanse the stall thoroughly every morning.

(21.) Sharp bits make the mouth tender at first, and afterwards callous, so that the horse becomes unmanageable.

(22.) If your horse kicks and plunges on mounting, look to the stuffing of your saddle, and see if it has become hard and knotty with use.

(23.) Keep your wheels well greased, and thus reduce the labor of drawing the load.

(24.) Keep the feet well brushed out, and examine every night to see if there is any stone or dirt between the hoof and the shoe. Change the shoes as often as once a month.

(25.) Disease or wounds in the feet or legs soon become dangerous if neglected.

(26.) When a horse is hot and fatigued from labor, walk him about till cool; groom him quite dry, first with a wisp of straw, and then with a brush; rub his legs well with the hand, to remove any strain, soothe the animal, and detect thorns and splinters; and give him his grain as soon as he is cool, dry, and willing to eat.

(27.) On the evening before a long journey give double feed; on the morning of starting give only half a feed of grain, or a little hay; on the road feed in small quantities about every two hours.

(28.) When horses are long out at work provide them with nose-bags and proper food. The nose-bag should be leather at bottom, and of basket-work or open texture above. On coming home give a double feed of grain.

(29.) Lead the horse carefully into and out of the stable. Accustom him to stand quite still till you are seated. Start at a walk, and go slowly the first and last mile.

(30.) Never use the whip if you can help it. It will then always be available as a last resource.

(31.) Be always on your guard, just feeling the mouth with the bit, lightly and steadily.

(32.) If a horse shies, neither whip him nor pat him, but speak encouragingly, and let him come slowly towards the object.

(33.) If you value your own life, the lives of others, or your horse, never drive fast in the dark, or in a town.

(34.) Never add your own weight to a load that is already heavy enough. Get out and walk when you ascend a hill. If you stop on a hill, put a stone behind the wheel.

(35.) Never tease or tickle the horse.

(36.) Don't forget that old horses, like old men, lose their teeth and their chewing abilities; therefore, bruise the oats and corn, and chop the hay for the old nags who can't get "store teeth."

Hydrothorax.—This is the name given to water when it accumulates in the chest. Hence, hydro, water: and thorax, the chest.

Causes. Debility from the effects of inflammation of some of the organs within the chest.

Treatment. Tonics to improve the general health, and medicines to draw off the water by the kidneys and bowels. An operation is recommended by which the fluids are drawn from the side by means of a trocar. (See Dropsy.)

Hydrocele.—A collection of fluid in the scrotum of stallions.

Treatment. Paint the scrotum with the tincture of benzoin or iodine. If these remedies are not successful in causing absorption of the water, the skin of the scrotum will have to be opened to let out the fluid.

Hydronemia.—A name used when speaking of the blood when it contains too much water—water in the blood. (See Dropsy.)

Hydrophobia.—This disease, happily, is rare—in a practice of thirteen years, and doing much in the treatment of diseases of horses, and being well acquainted with the practice of other persons, I can only record three cases, and one of these was a mule.

This disease is sometimes called *water dread* and canine rabies, from the fact that it is only generated in the dog and feline species of animals.

Cause in Horses. Bites of the mad dog, and sometimes the bite from the common cat is capable of producing the disease.

Symptoms. In those cases that came under my notice the symptoms were anything but like each other. In one animal, the propensity to bite at objects was more severe; and in another, the horse would walk and look about him, utter a peculiar sound, and lie down and get hold of the heels and part of the arm of the fore leg with his teeth, till he had them bleeding, get up again, and walk about without any apparent object in view. But the destructive impulse attributed by some authors, I think, is merely the fancy of an inexperienced mind in such matters. The symptoms of the mule differed from each of the horses, inasmuch as he would, at times, eat hay very ravenously, stop all at once, and with a peculiar sound, not like the bark of a dog, but of a character which cannot be described, lie down and have a good roll to himself; then he would run at any person within his reach with open mouth. But in no instance did any of the cases attempt to bite at anything not endowed with animal life. All of these animals were confined in enclosures from which they could not escape. They lived about thirty-six hours after the actual symptoms of the disease set in. (See Bites of Mad Dog.) Any person having the least experience with horses, may observe peculiarities, at times, which do appear not to belong to common diseases.

Hypertrophy.—This name means a state of certain organs increased in size, and decreased in power. The heart, kidneys, spleen, liver, and other parts of the body, are liable to this disease.

Hypodermic.—Under the skin. (See Endermic.)

Hysteria.—This is a disease which is sometimes seen in mares only.

Causes. Irritation of the uterus, or of some of its nerves.

Symptoms. Great excitement and incapability of standing, and it appears as if some of the bones of the back or loins were broken.

Treatment. Give twenty drops of the tincture of aconite root

every four hours, whilst the symptom lasts. Build up the strength of the mare by the following: Sulphate of iron, three drachms; gentian root, three drachms. Mix, and give in one dose every day, for a week or ten days. Give good feeding.

Caution. Unsafe to use; will return again.

Indigestion.—However much man, in the sedentary walks of life, may be the subject of this disease, the horse with a task-master is comparatively free from it. Cases do occur, occasionally, in our large cities, where in too many cases the horse is left standing in the stable twenty out of the twenty-four hours. Idleness begets indigestion, and indigestion begets crib-biting, or wind-sucking, and between them the poor horse loses flesh, condition and spirit. (See Crib-biting.)

Treatment. Send the horse to pasture, and when he returns give him regular feed, and regular work to prevent a return of it.

Infection.—(See Contagion.)

Inflammation.—Inflammation of the various portions or parts of the body will be found treated of under the name of the organ or part affected.

Influenza.—This is a name which is properly applied to an epizootic catarrh of frequent occurrence in the spring of the year. Indeed, it is very rare that we see a cold run its course as such, without some complication of one kind or another.

Symptoms. A chill or shivering fit, succeeded by increased heat of the body, with fever and irritation. Loss of appetite, cough, discharge of mucus from the nose, watering of the eyes, great prostration of strength, followed in a day or two with swellings of the legs, and in bad cases, of the belly, breast, and in males, of the sheath; such is a true and succinct account of the symptoms of this disease. The symptoms will vary, as in other diseases, with the intensity of the affection.

Causes. A subtle poison in the air, sudden changes in the dryness or moisture of the earth's surface, easterly winds, cold accompanied with dampness in the air. These are conditions which too often accompany or precede influenza, which differs from an attack of common cold, chiefly in the severity of its effect, causing more fever and greater debility. In England it was first observed in 1819, and again in 1832, and more or less ever since. In the

United States it first manifested itself in 1856, and is still seen every spring and fall with symptoms more or less severe.

Treatment. The mortality in this disease is great, when treated according to the books which our publishers frequently issue—old English books, with new dresses cut to the fashion. Bear this in mind, when undertaking the treatment of a disease of this kind, that one step wrongly taken can never be recalled. Place the horse in a cool (not cold) and airy place, put a light covering upon him, and give him twenty drops of the tincture of aconite root in a little cold water, every four hours, till five doses are given. Place plenty of cold water before the horse so that he can drink as much as he wants. When the aconite has been all given commence with fifteen-drop doses of tincture of nux vomica, which repeat every four hours, continuing it for a few days, and if the animal improves, and the appetite returns, nothing more in the way of medicine need be given. Recovery, being slow, and the appetite poor, give the following powders, morning, noon and night: Powdered carbonate of ammonia, three ounces; powdered gentian root, two ounces; powdered pimenta berries, two ounces; mix, and divide into twelve powders, and give them mixed in a little cold water, and drench the horse out of a strong-mouthed bottle. The powders will have to be wrapped well, so as to keep them from the air, and prevent the loss of their strength. Twenty drops of commercial sulphuric acid may be given occasionally, in half a bucket of cold water, which the horse will readily drink. Do not apply blisters or anything to the throat, as is too often done; they can do no good, but positively much harm. Be assured the animal has fully recovered its strength before putting to work. If treated in the manner described, in from five to six days the horse will be almost well again. (See Gastritis Mucosa and Rheumatism.)

Injections.—These are composed of warm water, soap, and a handful of table salt; the water about luke-warm. The usual way to give injections, is by means of a large syringe, capable of holding a quart of the fluid. The diseases which call for injections, are the various varieties of colic. Few medicines will cure colic without the aid of injections; whereas, colic, in very many cases, can be readily cured by the injection alone. Therefore,

never put confidence in any person who undertakes to cure colic, without injections of warm water, soap, and salt.

Intestines.—Introsusception, or an entangling of the intestines, sometimes takes place in horses, and proves fatal.

Causes. Bowels empty, and the horse being driven fast.

Symptom. When the horse comes in, he is observed to be uneasy—lying down, pawing with his feet, following closely the symptoms of colic. The difficulty or impossibility of procuring relief, is only seen on examination, after the horse is dead. (See Bowel Diseases.)

Itch.—(See Mange and Skin Diseases.)

Interfering.—This name is in use when speaking of a horse hitting himself on the inside of the pastern joint, either on the hind or fore leg. Sometimes it is called cutting. It is usually done with the side of the opposite foot.

Causes. The blacksmith is many times wrongfully blamed for want of attention or skill in shoeing the horse, because he interferes. There are cases, no doubt, where a little observation and care, on the part of the shoer, would have prevented it. From much observation, however, I am satisfied that the chief cause lies in the *weakness* of the horse, particularly in the spring of the year. Horsemen well know that their horses did not interfere in the winter months, when the weather was not oppressive, and the horse in excellent spirits; and no changes have been made in the shoer or manner of shoeing.

Treatment. Give a few powders of iron and gentian in the feed, to restore the horse to strength. (See Medicines.)

Jack.—A small point on the inside of the hock-joint of the horse, affected with bone spavin.

Jaundice.—This signifies bile in the blood; biliary intoxication, tinging the membranes of the nose, mouth, etc., with a yellow color.

Joint Diseases.—The diseases of the various joints in the horse, are many. Among them may be enumerated: Of spavin—bone, blood, bog and occult—four varieties, all of the hock-joint; of the patella, in the form of dislocation; of the hip, or whirl-bone joint, ulceration and sprain; of the joints of the back-bones, caries and ulcerations; of the foot, coffin-joint, commonly called navicular

joint, lameness; of the pastern-joints, anchylosis or stiff-joint; of the lower pastern, ring-bone; of the knee-joint, stiffness and open joint; of the point of the shoulders, ulceration and bulging out of the capsular ligament of the joint: wind galls, of almost all the joints, more specially in the pasterns. The cause and treatment of these affections will be found under their proper heads, throughout the book.

Jugular Vein, Inflammation of.—This may be merely a simple swelling, after bleeding, caused by bruising the parts, by too great force applied when bleeding, or by closing the wound too tightly, causing extravasation of blood, between the skin and the fascia. Inflammation of the jugular may be of great magnitude, involving that vessel the whole length of the neck, above and below the wound made by bleeding, ultimately causing its entire obliteration. And, occasionally, the inflammation extends to the brain itself, destroying life. Happily, bleeding is not now recommended in the treatment of disease; consequently, this affection will be among the diseases of the past.

Treatment. Remove the pin, or whatever has been used to close the wound, and apply a piece of blue-stone to the bleeding sore; this may be used, once a day, for a day or two. Hot fomentations, or a small poultice, should be applied to the part, to abate inflammation or irritation. The fomentation will have to be applied the whole length of the thick corded vein, to cause its relaxation. Cut the feed for the horse, so as to save the movements of the jaws, thus giving rest, as much as possible, to the parts affected.

Kidneys, Diseases of the.—The most important of which is that already described under the head of diabetes (which see). Hæmaturia or bloody urine is occasionally seen in horses, more frequently in cattle, and consists in a diseased state of the kidneys. from violent strains or accidents.

Calculi, or stones in the kidneys, are often found in the kidneys of horses, and cause considerable irregularity in making water.

Treatment. Occasionally give thirty to forty drops of muriatic acid, in a bucket of cold water, to drink.

Bloody urine may be treated by warm-water cloths, laid over the back or in a situation above the kidneys. Use flaxseed tea

as a drink, to soothe the parts. Give no saltpetre or other medicines.

In old horses, as in old men, considerable chronic disease of the kidneys exists. Although little can be accomplished in the way of cure by medicines, a great deal can be done to soothe the parts, by soft and soothing feed and drink, such as steamed or boiled feed and flaxseed tea, cut grass and other green feed, with plenty of cold water, at all times to drink. The more fluids that go into the body, the less irritation of the bladder and kidneys. (See Bladder Diseases.)

Knees Broken.—(See Broken knees.)

Knee Joints, Loose Cartilages in the.—Small loose cartilage is sometimes found floating in the knee-joint of horses, as well as of man, and is the cause of much of the obscure lameness that is so often unaccounted for, and, so far as I am aware, has never been noticed by other writers. The lameness is very sudden, and passes off as if nothing had happened, constantly coming and going.

Treatment. Remove the body from the joint by first getting it into a corner and holding it there, and cutting and taking it out; this is too dangerous an operation for every person to undertake, as it is cutting into a synovial cavity.

Knuckling. This is a peculiar loose double action of the pastern of the hind legs, and is a symptom rather than a disease of itself.

Cause. Disease of the hock-joint, and weakness in the part from the effects of sprains, or other injury. It also accompanies occult and bone spavin.

Observe. Knuckling of the hind pasterns is a symptom strongly indicative that the animal has had an attack of paralysis or is likely to have one; at all events it clearly shows that either the brain or spinal cord is to a certain extent diseased, resulting in loss of motive power in the pasterns.

Treatment. Feed the horse well, and give fifteen drops of the tincture of nux vomica three times in the day. If the hock-joint be the cause, treat the hocks as for spavin, or palliate the symptoms by applying two parts of olive oil, and one part of creosote and oil of turpentine, two to three times in the week.

Lameness.—Lameness occurs in many ways, and from many causes, such as fractures, bruises, sprains, wounds or injuries, all of which will be found treated of, under their various names, through the book.

Laminitis.—A name in use by veterinary surgeons when speaking of founder, and is a generic term from *lamina*, or leaf—which forms the bond of unity between the sensible and insensible structures of the horse's feet, and is the seat of the disease commonly called founder. (See Foot Diseases.)

Lampas.—This is a name applied to a slight enlargement, swelling, or fulness of the bars of the mouth of young horses from the changes of teething. Pinching the skin of the bars with the nail of the thumb till they bleed, and rubbing in a little table salt, is much better than burning the mouth with a red-hot iron —the effects of which the animal never forgets nor forgives, as is shown in any attempt to do anything about his head.

Laryngitis.—This is a disease or inflammation of the upper portion of the windpipe, accompanied with fever, increased breathing, and cough. The cause and treatment of this disease will be the same as for bronchitis (which see).

Leg, Fractures of the.—(See Fractures.)

Lice.—Lice of various kinds are often the source of much trouble amongst horses kept in the vicinity of hen or chicken houses.

Symptoms. Uneasiness, rubbing, and scratching; stamping with the feet and biting at the legs, as if something were annoying him.

Treatment. Take of the liver of sulphur, one ounce; cold water, one pint. Mix, and apply with a hard brush to but a portion of the body at a time. If that is not effectual, get bi-chloride of mercury, thirty-two grains; cold water, one pint. Mix, and apply with a brush to a portion only at a time, or a piece of the body every day, till all has been gone over with the brush. This is very weak, and can do the horse no harm.

Ligaments.—These are strong, fibrous substances, which bind together the different bones of the body or skeleton. There are two great classes of ligaments · the rounded, or the lateral, and

ine capsular, or sack-like ligaments, as of the shoulder and hip-joint.

Lipoma.—A variety of fatty tumor. (See Tumors.)

Liver.—The liver is the largest secreting gland of the body, situated within the short ribs on the right side. Its function is the secretion of bile—a yellow alkaline or soapy fluid.

Without the liver, digestion and animal heat cannot be maintained, and the waste or effete matter cannot be removed from the blood. So, therefore, when the liver is disturbed, there can be no health in the rest of the system.

INFLAMMATION OF THE LIVER.—The horse is rarely the subject of inflammation of this organ in an acute, but more commonly in a chronic form. It is often met with from the fact of many horses being highly fed, and having nothing to do.

Symptoms. The affected part is very obtuse. But we have a very striking analogy of this disease between man and the horse, which materially assists in forming a correct opinion as to the disease. Pain and lameness in the right shoulder are characteristic of liver disease, whether in man or horse, and have often been mistaken for and treated as the disease itself. Not less so is the peculiar yellowness of the membranes of the eyes, nose and mouth, constituting a disease called by old horse doctors the *yellows*.

Treatment. Give powdered aloes, four drachms; powdered ginger root, two drachms; podophyllin, one drachm. Mix, and make into a paste with molasses, and form a bolus, or crumble the mass in a little thin gruel, and drench the horse with it. Feed the horse with green and soft feed to keep the bowels open.

These measures being neglected, suppuration or an abscess will be formed, and break into the bowels, or become absorbed and produce glanders, which I believe to be a prolific cause of this disease, and which is preceded by ill health and bad habit of body, terminating by a mysterious and unaccountable discharge from the nose, inasmuch as it is not accompanied with cough, and other symptoms of cold.

Locked-jaw.—This disease occurs usually after wounds of the feet, as from nails running into the feet, from wounds and fractures, and from a simple wound of a tendinous portion of the body. Locked-jaw occurring after wounds or other injuries, is called *trau-*

matic. And when locked-jaw takes place, as it sometimes does, without any injury or assignable cause, it is called *idiopathic* locked-jaw. Locked-jaw may be defined a spasmodic contraction of the muscles of the body, often confined to one set of muscles alone. I have in practice seen the same contraction in one set of muscles of the body, and the muscles of the jaw free from the cramps and not fixed at all, and depending upon the same causes that often produce fixedness of the jaw. Locked-jaw is sometimes confined to the muscles of the neck, and is then called *trismus.*

Symptoms. The symptoms accompanying locked-jaw in the horse are so well known to everybody, that little need be said by me about them further than that there is general stiffness and fixedness in the manner of standing, and a peculiar expression of countenance. The extended and dilated nostril, and the fixed ear, tell the fact, very plainly, that the muscles of the head and neck are beyond the control of the animal, else his jaw or mouth would not be kept closed.

Treatment. Remove the painfully-stricken animal into a place by himself, where he will have plenty of air, and no sound or sight to disturb him, and where no curious idler can enter. Place a bucket of cold, thin gruel where the horse can get at it, without an effort to himself to reach it. This is all the feed he will be likely enabled to take for a period of from three to sixteen days. Renew it once a day, and keep it sweet. He may be able to suck this through his teeth. Small, choice morsels of other food should also be placed within his reach, so as no opportunity be lost whereby his stomach may be filled, and his overtaxed strength be supported.

In securing the gruel or other feed, have everything at hand, so that *only* one journey will be necessary, in the twenty-four hours, to the place he is confined in. Open not the door of his house twice when once can be made to answer: thus much suffering may be avoided, and the chances of recovery enhanced. All the medicine necessary for the horse to have, will be one drachm doses, once in the twenty-four hours, of PRUSSIC ACID. Great care will have to be exercised in keeping this powerful poison; and considerable judgment as to how this medicine is to be given to an animal with his jaws closed. GENTLY elevate the head a little to

insure proper gravitation, and pour the acid into the widest part between his teeth, and hold the head steadily for a few minutes; then retire, and close the door, not a loud word being spoken. A table or dessert spoon will answer for the purpose very well. Veterinary surgeons have an elastic tube, which is introduced into the back part of the mouth, and the acid poured down the tube.

If the animal live from three to four days, and is afforded every opportunity to eat a little, he may get well. Whatever the wounds or injuries that have given rise to the locked-jaw, they should be dressed with equal portions of olive oil and creosote, which will soothe the irritated nerves of the part. An occasional poultice of flaxseed may be necessary.

Above all things, neither bleed nor physic, as these can do no good, and will only hasten the death of the animal by taking away whatever strength he may have, all of which will be necessary to carry him through so severe a disease.

Loins.—Sprain of the loins or small of the back is sometimes seen in weakly built horses of irritable disposition.

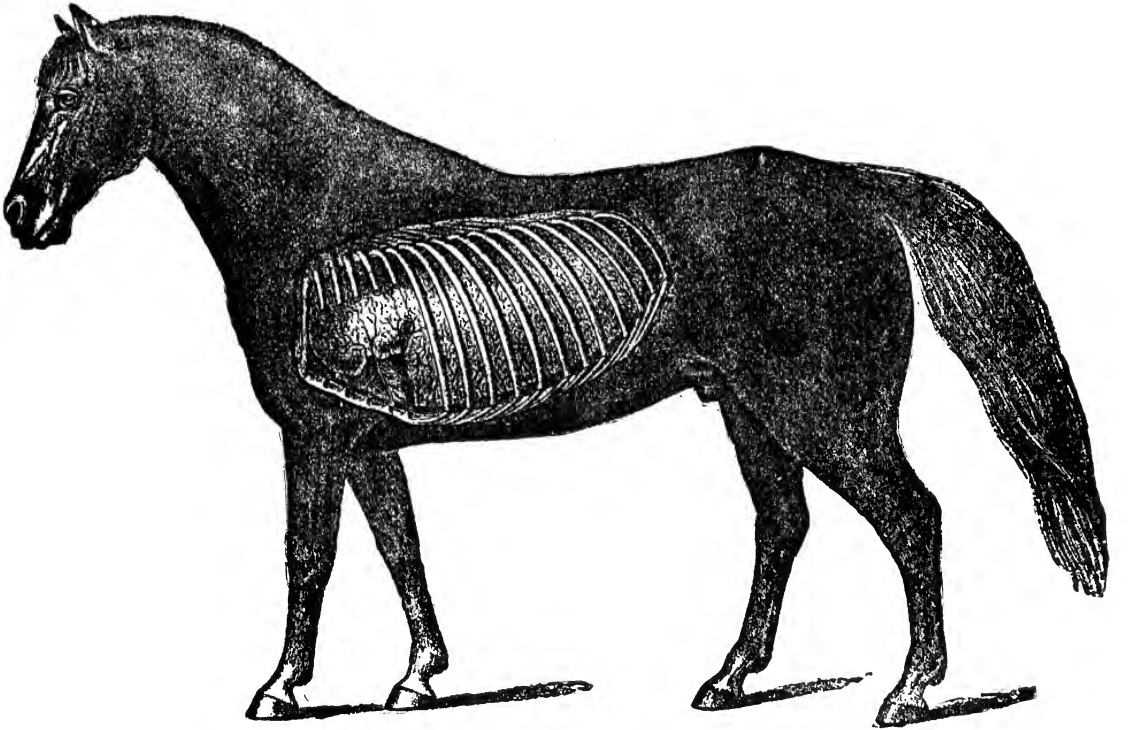
Symptom. Weakness upon pressure, as of a saddle-horse yielding to the rider, when mounting the horse.

Treatment. Warm-water cloths should be laid over the parts for a few days, followed in the same manner by cold-water cloths. Give rest and good feed, and use the horse in the shafts of a light four-wheeled carriage, or in double harness. Saddle work may be the means of its return, more especially if ridden by a heavy person.

Loss of Appetite.—This is more of a symptom than a disease, and requires for its removal the cause which gave rise to it. In cold, influenza and fever, the appetite is bad, and with their removal it will be restored. Take powdered carbonate of ammonia, pimenta berries, gentian root, each two drachms, mix in some cold gruel, and drench the animal twice a day. This will not only remove, in a measure, the cause, but will restore the appetite also.

Lumbago.—This is applied to a peculiar stiffness over the loins or back, partaking of the nature of rheumatism (which see).

Lungs.—These are the organs of breathing, and are subject to many diseases, having names familiar to every horseman. Under this head, however, I will only notice inflammation of the sub-



POSITION OF THE LEFT LUNG.

stance of the lungs, *pneumonia* (lung fever), and of the surface of the lung, *pleurisy*, *abscess*, *adhesion*, and congestion. (See Cough, Cold, Bronchitis, and Emphysema.)

(1.) PNEUMONIA.—(*Pronounced numonia.*)—This is an inflammation of the substance of the lungs, of late years called lung fever, and is sometimes very common in the spring after a severe winter.

Symptoms. Chill followed by fever and increased for a short time, and is succeeded by cold legs and ears, quickened breathing, and wide, open nostrils. A peculiar quivering of the muscles of the side and breast will be observed in all cases of imflammation of the lungs, and will rarely deceive. The animal will eat nothing, and persistently stands with his nose and mouth in the manger; and if taken out of the stall and stable to the open air, he will almost refuse to go back again into the stable, relief being experienced from the fresh air. Hence, the necessity for plenty of fresh air in all diseases of the lungs. When the ear is applied to the side of the neck, a peculiar creaking noise is heard. Slight discharge of serous flakes or matter will be observed sticking to the sides of the nose. If this disease be not subdued or cured, it ends in abscess. The peculiar pulsations observed in this and other diseases, will be found treated of in the introductory remarks. To the non-professional person, the general aspect or appearance of the horse, when under this disease, is infinitely more important as a rule and guide in determining the seat and nature of the disease, than any assistance they can gain from the pulse.

Cause. Alterations and sudden changes in heat, cold, and moisture; an animal not in condition for work; a hereditary predisposition in the lungs to take on disease. Changes which will produce lung disease in one horse will produce disease of a different character in another.

Treatment. Place the horse in a light and airy place, and clothe him according to the weather. Bandages to the legs will, at all seasons, be necessary to keep them warm, and to that extent relieve the lungs of a portion of blood. Aconite, judiciously given, is the most powerful remedy I am acquainted with. Tartar emetic, so valuable in this disease in man, dogs and swine, has no more effect whatever upon either horses, sheep or cattle, than so much flour or meal. Give twenty-five drops of the tincture of

aconite root, in a cupful of cold water, and drench the horse. Repeat the dose every four hours, till six doses are given. In the majority of cases, one or two doses will be all that is required to effect a cure.

(2.) Pleurisy.—Inflammation of the membrane covering the lungs and lining the cavity of the chest.

Symptoms. A rigor or chill, fever, disinclination to turn short, an occasional short painful cough, and careful breathing, accompanied with a sigh or grunt. A peculiar line will be observed in pleurisy, running from the haunch, round the belly to the breast-bone. The breathing is deep, not so short and quick as in inflammation of the lungs. In the first twenty-four hours after the attack, pain will have given way, and the horse be apparently better. This, in the majority of cases of pleurisy, when left a few hours to itself and not checked, terminates in *Hydrothorax* (which see), or water or serum in the chest, sometimes causing adhesions. The *favorable termination* of pleurisy is by what is called *resolution.*

Causes. Changes in the atmosphere. Exposure to cold. Broken ribs or wounds.

Treatment. Treat the horse as for inflammation of the lungs, by giving him pure air, cold water and aconite; followed on the second day by five grains of powdered Spanish fly in gruel, once in the twenty-four hours. To remove the fluids from the body, give, after the active stage of the disease has passed, good feeding and generous diet.

(3.) Abscess.—As elsewhere stated, abscess is the termination of the inflammation of the lungs. Pus is a common result of inflammatory action, and when in the lungs is called *vomicæ*, causing, in some cases, consumption. Where absorption of the pus has taken place, glanders is the result.

The abscess frequently breaks into the bronchial tubes, and then pus escapes into the larynx and *nares* of the nose. Hence the persistent discharge which is so characteristic of glanders.

Treatment. The same as for glanders; generous diet, tonics, and stimulants, with the sulphite of soda and the Spanish fly. (See Glanders.)

(4.) Effusion of Serum.—Hydrothorax is one of the ways in which pleurisy terminates, and when this effusion is extensive,

not much hope of recovery may be expected. Cures, however, have been made by drawing off the fluid by means of a trocar pierced through between the ribs into the chest.

(5.) Adhesions.—The surface of the lungs becomes attached to the sides of the chest by fibrous bands of great strength, another common result of pleurisy. Nothing can be done but to keep up the health and strength by good feeding, etc.

When animals do not thrive and pick up their spirits and flesh after pleurisy, some of these various conditions may be reasonably expected to be present.

(6.) Congestion of the Lungs.—The lungs are liable to become congested, when they are overcharged with blood.

Symptoms. The horse blows, his nostrils are very much expanded, he is heaving at the flanks, and is the picture of distress and stupidity.

Cause. Weakness and want of power in the blood vessels to contract and empty themselves.

Treatment. Allow free access to cool air, clothe the body and bandage the legs to encourage the blood to the skin and legs, and give the following mixture: Sweet spirits of nitre, half an ounce; powdered carbonate of ammonia, half an ounce; mix in a bottle of cold gruel, in the form of a drink. If these articles are not at hand, give two bottles of warm ale or half a bottle of brandy or whisky.

(7.) Pneumothorax.—So called, because the air escapes into the cavities of the pleura.

Lymph.—This is a name applied to the clear fluid which circulates in the lymphatic vessels and that which is poured out in cut surfaces, after bleeding has stopped, and forms the medium by which the parts adhere, and are joined together. In this instance it is termed coagulable lymph, the principal element by which adhesive inflammation is carried on.

Lymphangitis.—This is a disease which attacks large coarse-bred horses that are difficult to keep in good condition, and consists in the outpouring of plastic lymph into the femoral veins of one of the fore legs, which, as a consequence, swells to a very great size, and exhibits to the touch a feeling of a great many irregular prominences under the skin. It is hot, painful, stiff, and

accompanied with fever, which in a short time passes off. In a few days the heat, pain and swelling will diminish a little, and the horse will move more freely, but will, in most cases, retain a "thick leg" for life. Fomentations of warm water should be applied to relieve heat, tension and pain; to be followed in a few days with broad bandages tightly rolled round the limb. Give soft feed, such as cut mess, bran and green food. As soon as the animal can move the leg, he may be put to slow work.

Madness.—A disease produced by the bite of a mad dog. (See Hydrophobia.)

Mad Staggers.—An affection of the brain. (See Staggers.)

Maggots.—These are sometimes seen in neglected wounds and sores, in warm weather. To remove them apply equal parts of creosote and olive oil, or a solution of corrosive sublimate.

Malignant.—A term applied to diseases of a fatal character, as glanders, for instance. Why the term malignant should not be applied to such diseases as locked-jaw and inflammation of the bowels, which are so often fatal, is one of the inexplicables of medical nosology or terminology, not easily for me to understand.

Malignant Epidemic.—English writers tell us that a malignant epidemic has attacked horses on the European continent. Influenza is a disease from which scarcely one per cent. should die when scientifically and intelligently treated; but by bleeding, blistering, physicking, and low diet, a really simple and non-fatal disease is at once converted into a fatal and malignant epidemic.

Mallenders.—A term used by old books and horse doctors, to designate a scaly condition of the skin back of the leg and opposite to the knee. A term which certainly, to say the least, should long ago have been blotted out of all the books, as vague, uncertain, unmeaning.

This scaly eruption is the result of dryness of the skin of the back part of the leg, where the greatest and almost constant movement of the joint is going on. The same condition is seen on the face of some joints, and in others on the back, from the constant mobility of the parts.

Who has not seen scruffy or scaly heels of horses ending with scratches? (See Skin Diseases.)

Mange.—This is a disease of the skin, and is caused by a small

mite called *acari*, which breeds and burrows in the skin. To cure mange, destroy the insect. (See Skin Diseases.)

Materia Medica.—This is a name applied to every substance used in the treatment and cure of disease.

Megrims.—A disease of the brain occurring at periods, especially in hot weather, and when exposed to a powerful sun. This differs from epilepsy only in the absence of spasms. (See Epilepsy.)

Causes. Tumors in the choroid plexus and enlargement of the pineal gland.

Treatment. Merely palliative, by using a Dutch collar, so as not to interfere with the circulation of the blood from the head.

Observe. In summer the horses subject to brain disease, or fits of any kind, should not be used for family purposes. In winter they will make useful animals.

Melanosis.—A variety of cancer peculiar to gray horses, which turns white with age, and is caused by the transfer of the coloring pigment from the skin to the blood. (See Cancer.)

Melanoid.—(See Cancer and Tumors.)

Mesentery.—A membrane formed of two folds of the peritoneum, between each of which there are numerous glands, lacteals, lymphatics, arteries, veins and nerves. It is called the mesentery, because it adheres to three lumbar vertebræ, and has the small intestines hanging to it. One portion of it is called the mescolon—supporter of the colon—and another the mesorectum, which encloses the rectum.

Mesenterica.—Wasting of the mesentery is a disease which is not very common to horses, although some clearly marked cases are sometimes seen, characterized by wasting of the body, weakness, and general debility of the whole system. Bowels irregular, sometimes soft, at other times hard, of a pale or straw color, and frequently of bad smell. All that can be done is to keep the strength and condition of the horse up by iron and gentian, so frequently recommended throughout the book.

Metastasis.—A term denoting a change or shifting of disease from one part of the body to another, as is well illustrated in cases of rheumatism.

Moon Blindness.—(See Eye Diseases.)

Mortification.—Death of a part. (See Gangrene.)

Moribund.—A term in use, and applied when men or animals are in a dying condition.

Mouth, Diseases of the.—These are but few; perhaps the irregularities of the teeth are the most important. So much is this the case, that from diseased or carious teeth, an affection arises, to many external appearances, similar to glanders; and horses have accordingly been destroyed, whereas, if a carious tooth, producing a stinking discharge from the nose, had been removed, these appearances would have passed off. The edges of the teeth of horses, at all ages, are apt to become sharp, and cut or wound the inside of the mouth, and interfere with mastication or chewing. When horses are off their feed and losing flesh, it will be well to have the teeth examined. To remedy any irregularity of the grinders, a rasp, or file, with a concave surface and long handle, is used to make the teeth smooth and level. Wolf teeth are supernumerary, but do no injury to either the mouth or *eyes*.

(1.) Scald Mouth.—Another simple affection of the mouth, which is characterized by the horse slobbering or frothing from the mouth, as if salivated. In aggravated cases fever is present.

Treatment. Give ten drops of the tincture of aconite root in a little cold water three times in the day, for 48 hours, and allow the horse to have a bucket of cold water suspended or placed before him, to cool his mouth in.

(2.) Wounds of the Tongue.—Should be treated the same way, but without the aconite. If the tongue is nearly cut through, have the cut portion entirely removed. The horse can do wonderfully well without a large part of his tongue.

(3.) Black Tongue.—This is not a disease, but the effect of a simple and non-fatal affection, frequently treated by bleeding, blistering and physicking—destroying vitality, and inducing mortification of the tongue, as well as of other portions of the body.

(4.) Aphthous Thrush.—Soreness of the mouth, with white patches on the tongue, inside the cheeks and roof of the mouth. In man, this condition of the mouth is called *stomatitis*.

Causes. Bad condition of the stomach and dyspepsia.

Treatment. Borax in powder, one ounce; molasses, three ounces; mix, and apply with a soft brush, or soft piece of cloth. Give soft

feed or cut grass. A few doses of sulphite of soda, half an ounce to a dose, given for a few evenings, will be all that is wanted. (See Lampas.)

The mouth is a favorite and convenient place for horsemen to try the keenness of their pocket knives, when the least pretext is offered.

The palatine artery is sometimes cut lengthwise; and when that is the case, the bleeding thus unnecessarily induced, will not stop when it is wanted. Many plans and contrivances are recommended, by individuals, to stop such bleeding; but none are equal to a piece of iron or kitchen poker immersed, for a few minutes, in hot water, and applied to the wound for a moment, which will at once stop further loss of blood.

(5.) Parrot Mouth.—A malformation consisting in the upper front teeth, projecting over the lower ones. Young horses are little inconvenienced by it, but not so with old ones, when the teeth are long; for then the lower teeth wound the soft palate of the upper jaw, especially when the horse is eating. Keep the teeth short by the use of the file.

Mucous Membrane.—A thin lining of all the air passages; so-called, because the surface is kept moist, with a slimy matter, as referred to in the succeeding article. When this mucus is altered in quantity and quality, and when mucus-pus is poured out, disease is present. This is seen in cases of cold, bronchitis, and inflammation of the eyes (which see).

Mucus.—A thick, viscid substance, thrown out from the mucous membrane, throughout the body.

Myalgia.—A term given to inflammation of a set of muscles, and is applied, by some, to wasting of the muscles, as is sometimes seen in sweenie.

Narcotics.—Medicines which act upon the nervous system, diminishing its power and sensibility, and so relieving inflammation, irritation, and pain. A medicine capable of doing this, also contains the properties of an anodyne, a sedative, soporific, carminative, and nauseant.

There are but few medicines possessing this power over the horse, and these are, aconite, prussic acid, veratrum, and, perhaps, lobelia. In my practice, nothing answers the purpose so well as

aconite. It is the great antiphlogistic. Indeed, so great is its power, that in bronchitis, inflammation of the lungs, feet and bowels, or where there is pain and fever, no remedy or remedies can compare with this invaluable medicine in the treatment of diseases of the horse. (See Medicines and Prescriptions.)

Nasal Gleet.—A thin, transparent discharge from the nose. (See Gleet.)

Navicular Disease.—This is a disease commonly called coffin-joint lameness, and by some it is termed grogginess. (See Foot Diseases.)

Necrosis.—This is a term given to a dead bone when it is attached to a sound one. The difference between *caries* and necrosis is this: Caries is present when the bone is impaired only, and necrosis when the bone is entirely dead, and its functions have entirely ceased. When a bone has fallen into the condition of necrosis, its removal becomes as necessary as the removal of any other dead or foreign matter, in order that reparation and restoration of the function be effected, and a cure be made.

Nephritis.—A technical term applied to inflammation of the kidneys (which see).

Nervousness.—Few persons having the care of horses have failed to observe in them, occasionally, a peculiar excitability of disposition when any confusion and noise is going on, and when being harnessed for work. The tail becomes somewhat elevated. They move from one side of the stall to the other, and pass manure from them repeatedly every few minutes, until one would think there was nothing left in their bowels. These animals are usually light bellied and poor feeders, but fleet and free goers, very gay in the saddle or harness, and much admired by persons not versed in horse-flesh. They make excellent Sunday horses, but very poor every-day animals, as the constant excitement, when at work, overdoes their physical powers. This condition impairs the value of the horse very much.

Treatment. Keep nervous horses in a place by themselves, where there is no noise or sound to disturb them, and have no harness or saddles in the place with them, nor clean harness or saddles where they are; for whenever a piece of harness is seen in the hands of the groom, the animal expects it is to be put upon him

—hence he gets excited, and efforts are made to empty the bowels of their contents. The harnessing or saddling should be the last thing done before going out with such a horse, as it gives him no time to empty the bowels and become excited. Ten grains of opium, and a drachm or two of prepared chalk may be given, either half an hour before going out, or after he comes in. Such horses are more pleasant to drive, if this be given. Stuffing cotton or wool in the ears also has a good effect.

Neurotomy.—An operation for dividing the nerves of feeling, as they enter the foot on both sides of the leg. The operation is performed for the purpose of removing pain from the foot in navicular disease. It has, however, of late years fallen into disrepute on account of ignorant men operating indiscriminately on feet of all forms and shapes alike—in consequence of which no surprise should have been expressed, when in some cases the feet ultimately fell off.

Neurotomy should never be performed upon flat and weak-footed horses, as they are easily bruised, and suppuration is set up, terminating in separation of the outer and inner foot structures. Weak and flat-footed horses, when sound, are careful how they put their feet upon hard roads and paved streets; but when deprived of all feeling by the operation of neurotomy, they let their feet come down on the ground with great force, so as to injure them, resulting as before stated, in the hoof falling off.

Nose, Diseases of the.—(See Cold, Catarrh, and Bronchitis.)

Numbness.—Loss of feeling in any part, usually indicating disease of the brain, resulting in paralysis or palsy.

Obesity.—This is a term applied to morbid or unhealthy fatness. When this condition is in the mesentery, it produces big belly; in the liver, fatty liver; in the heart, fatty degeneration of that organ.

Causes. Little or no work, or exercise disproportionate between the amount of food taken and the waste.

Treatment. Constant and regular work; feed, in small bulk, oats instead of corn, and much hay. To animals inclining to take on too much fat and flesh, give a dose of physic (see Aloes, Medicines and Prescriptions), occasionally, but do not bleed.

Œdema.—A term signifying soft but not inflammatory swell-

ings of various parts of the body, as a sequel to debilitating diseases. These swellings contain serum thrown out from the blood. The treatment of this affection will be the removal of the exciting cause. (See Dropsy.)

Œstromania.—This name is, by some, called œstening, which name is applied to mares and cows when desiring the male.

Omentum.—A fold of the peritoneum, which hangs down from the stomach, and is reflected on itself upwards and backwards to the colon. It is in this where the great deposition of fat takes place. The omentum is often implicated in rupture.

Open Joints.—(See Broken Knees.)

Ophthalmia.—(See Eye Diseases.)

Ossification.—The formation of bone; but in the language of medical men, it means a deposition of earthy matter in the soft textures of the body where bone does not exist. Thus, for instance, we speak of ossification of the lateral cartilages of the foot, which form ring-bone. We have ossification of the heart, arteries, and other parts of the body.

Osteology.—A name used in speaking of the bony system.

Osteoporosis.—This is a name given to big head. It is incurable.

Ostitis.—(See Splint.)

Overreach.—This is the consequence of driving faster than the horse should go. The injury is generally done by the edge of the inner rim of the shoe. Avoid the cause, and treat the wound with the simple ointment. (See Prescriptions and Medicines.)

Ozena.—(See Gleet.)

Palliatives.—Medicines given not to cure disease, but to relieve the pain.

Paralysis or Palsy.—Loss of the power of moving in some parts of the body. Paralysis may be confined to one leg or two legs; then it is called partial. When the horse has lost the power of standing, and the four legs are affected, then it is complete. Usually, however, in the horse it is confined to the hind parts, or the haunches and legs. Sometimes the paralyzed part is numb, at others the sense of feeling remains.

Causes. Disease in the brain and spinal cord.

Treatment. If the patient is young, exercise patience and time,

and nature will do a great deal in a disease of this kind. The general health is to be kept up by good feeding and tonic medicine —such as fifteen drops of the tincture of nux vomica, four times in the twenty-four hours. Turn the horse from side to side twice in the day, and give plenty of dry, clean bedding to prevent the skin from scalding and peeling off—which is sometimes a source of great irritation to the poor horse. The paralyzed parts should be well rubbed with a stiff brush. Electricity has been regarded as an advantage in this disease, but from what I have seen, not much need be expected from it. The nux vomica offers, with good feeding and care, the best chance for recovery. It must be remembered that this is a nervous affection, and probably these diseases are not so manageable, nor are they so easily cured, as other affections of a different type.

Parotid Duct.—DISTENDED.—This is a rare affection in horses. It resembles a round ball attached to the edge of the lower jaw; an elastic encysted tumor, or rather like an encysted tumor. An incident, slightly illustrative of appearance, occurred some time since. I was called in to see a horse that proved to be so affected, and told the gentleman that so long as the ball did not break, it would do the horse no injury, and that I would not recommend its removal; whereupon he said he would give five hundred dollars if the horse had another on the other side, that then he would look like an Angora goat.

OPEN AND FISTULOUS.—This is a serious affection, for with every movement of the jaw in chewing or masticating the feed, the glands pour out the saliva which should mix with the feed, and assist in the act of digestion, and it is lost upon the ground. The animal becomes thin of flesh, gets weak, and after a time dies a miserable object.

Causes. Injuries, or accident to the gland or its duct, resulting in suppuration. From the mobility of the parts, fistula is established.

Treatment. Few horse doctors or farmers can cure this affection. An expert or accomplished surgeon is only able to effect a cure, and this will be by closing the open or fistulous duct, so that the saliva will, with the feed, find its way into the stomach.

India rubber dissolved in chloroform, applied over the mouth

of the wound, when it is thoroughly dry, will stop it for a few days. By continuing this application, a cure in a great many cases can be made.

Pathology.—A department of medical science which treats of the causes and nature of disease, and of the appearances of diseased parts when living or dead.

Patella, Dislocation of the.—This is a common occurrence in high spirited, nervous and weakly horses.

Symptoms. The horse stops, if at work, and throws up his head, slightly bending the pastern of the dislocated leg, and holding the leg back behind the body, being unable to bring it under it. Fever and irritation sometimes accompanies this accident, more especially if it is of rare occurrence in the animal. The oftener the patella has been out, the less fever and irritation will be seen. There are horses with which it is of frequent occurrence, and happily for them, there is just as little trouble in putting the leg in its place again; a crack of the whip will do it sometimes. This is a serious object, in an otherwise fancy horse. There is but one other affection of the hind leg which can be mistaken for it, and that is cramp (which see).

Treatment. Remove the horse to a stable, attach a rope to the pastern of the leg which is dislocated, carry the end of the rope through a ring or over a beam at or about the horse's head, place the end of the rope in the hands of one or two strong men—telling them not to pull till a man is placed at the head of the horse to keep him steady—have another man at the leg with one hand placed firmly on the point of the hock-joint, pulling towards himself, and the other pushing firmly against the dislocated joint, then let the men on the rope pull firmly and gently, till the foot is brought fairly in under the horse's body; after which the rope should be removed, and the horse kept quiet for a day or two.

Pasterns.—(See Sprains.)

Pelvis.—The anatomical name for the lower part of the abdomen or belly.

Pelvic Abscess.—This condition is sometimes seen in weakly constitutioned mares within a few days after foaling.

Symptoms. In from one to four days one of the thighs of the hind legs will be swollen, hot and painful, causing the mare to

shiver or appear chilly, not from cold, but from the suppurative inflammatory action going on. The milk will have almost entirely ceased, and the colt will have to be fed by the bottle as a child, or out of a bucket like a calf, till the mare is cured and the milk returns. One curious condition about pelvic abscess is, that although it suppurates, the abscess does not break usually on the thigh, as it would be expected to do, but within an inch or two from the haunch bone.

Treatment. The pus which has accumulated from so large an abscess, does not discharge itself from the place of opening, but burrows away down among the muscles of the hip and thigh, down to within a few inches of the hock itself. Hence, the great secret in the treatment of pelvic abscess is to make *two* free openings, one above, at the point of the soft abscess, and the other within from four to six inches of the hock on the outside of the thigh Then take a smooth elastic twig or a long piece of whalebone nicely smoothed with sandpaper, and introduce into the opening above, and gently force it down to within an inch or so of the lower opening. This being done the pus will all discharge itself from the lower hole. Then inject with a small syringe, once a day, for a few days, about half a tablespoonful of the following mixture: Oil of turpentine and olive oil, equal parts. Keep the parts clean, feed the mare and colt well, and leave nature to complete the cure.

Penis Hanging Out.—This is a serious defect, and is the result of weakness and debility. The organ of generation is weak, the sheath swells, clasping the penis in its grasp until it also becomes enlarged, and in most cases will not draw into its place again, so that it must either remain so or be cut off close to the prepuce or sheath. This affection and the opposite conditions, Phymosis and Paraphymosis, were very prevalent amongst the horses of the army, in the late war.

Peristaltic.—A term applied to the serpentine motion of the bowels, one portion contracting and forcing its contents onward into the next.

Peritonitis.—Inflammation of the peritoneum, or the serous membrane which lines the walls or inside of the belly, character-

lzed by great pain, and is the result of accidents or injuries, and, at times, surgical operations.

Treatment. The same as for any disease of an exalted kind, using aconite root, cold water and pure air, and after the pain and fever have subsided, good feeding.

Periosteum.—The thin pearly covering investing the bone. It is the stretch of this membrane in cases of splint which causes pain and lameness. (See Splint.)

Phagadena.—A name used in surgery, implying a spreading and destructive ulcer, which spreads rapidly and destroys the surrounding parts. The true meaning of this word is *eating*, and in its effects is similar to what is called, in domestic practice, hospital gangrene—a local, spontaneous combustion, in which oil globules are poured out in great quantity in and around the sore or ulcer. These ulcers are common on the heels and legs of horses after a severe winter. When on the heels, the ulcers are taken by horsemen to be scratches. Phagadena does not usually assume the form or appearance of a cut or scratch, but is generally a flat, round or oval, and circumscribed sore at first; the hair of the part stands on end, with oil drops all over the surface, and in a few days the whole of the skin and hair falls off, or a separation of the edges of the sore will take place, and the skin and flesh of the part will completely fall out (called core), leaving an unhealthy-looking sore, with a white sanious fluid covering the whole of its surface. When the slough does not take place, it is gradually eaten away, and in this case leaves on the edges and surface of the sore a thin dirty colored looking skin or membrane.

Causes. Bad habit of body, from impure blood, death of the part from exposure of the heels in some mixture of salt and snow. Cold drafts under stable doors.

Treatment. The complete removal of all dead matter belonging to the ulcer, and a thorough cleansing of its inner surface. This is important, as it will not only be rendered necessary as a measure of cure but as a surety against its spreading further up the leg or heels. Then sprinkle the edges and inner surface twice in the day, for a day or two, with powdered blue stone to destroy the unhealthy surface and hasten a red surface, or the granulatory process by which the hole will be speedily filled up again. Complete

the cure by sprinkling powdered loaf sugar over the sore twice in the twenty-four hours. Support the strength of the horse by good and generous diet. (See Scratches and Frost Bites.)

Phlebitis.—A name given to inflammation of the vein after bleeding, characterized by swelling and cording of the vein. (See Jugular Vein.)

Phlegmasia Dolens.—A name given to one leg when swelled to a great extent from plugging of the blood vessels of the leg with plastic matter poured into them from the blood. (See Grease.)

Phrenitis.—One of the many diseases of the brain characterized by the horse becoming unmanageable—a variety of staggers, or it may be of inflammation of the brain itself, and is incurable.

Physiology.—A branch of medical science treating of the life and functions of organized bodies.

Physicking.—In England, and in some parts of the European continent, a person who does not know how to physic a horse, whether sick or well, is not considered fit to take care of horses. In the United States, the man who knows all about, and recommends physicking under almost any circumstances, should not be permitted even to take a horse by the head, much less to take care of horses not his own. In an extensive practice of many years, I do not recollect a half dozen times, when I either gave or recommended a horse to be physicked; and no man can show equal success in the treatment of diseases of horses and cattle, let his mode of practice be what it may. Remember, when the bowels are opened, and emptied of their contents, an important pillar has been taken from under the animal structure. Show me a European book on the diseases of animals, which does not recommend and minutely describe how to physic a horse, and I will show you a city without walls, without a church, or gymnasium. In this connection, I am sorry to say, that our American authors, on animal diseases, have copied too closely from European practice, which is utterly unfit for this country, climate and the constitution of all our domestic animals.

Pleurisy.—Inflammation of the serous membrane covering the lungs and lining the sides of the chest. (See Lung Diseases.)

Pleuro-pneumonia.—Inflammation of the covering and substance of the lungs and chest.

Pleurodynia.—This is a rheumatic affection of the intercostal muscles, differing from pleurisy, from there being no constitutional disturbance, little fever and no inflammation. It is treated with a dose or two of the tincture of aconite root given internally, and mustard and a little vinegar rubbed into the muscles of the sides, behind the shoulder.

Pleuro.—Fullness of blood. (See Obesity.)

Pneumonia.—Inflammation of the lungs (which see).

Poisons.—These act differently in destroying life. They are derived from the organic and inorganic kingdoms, and their effects are either local or remote. Poisons may be taken into the stomach, inhaled in the form of sulphuretted hydrogen, communicated through the skin, as from the bite of a poisonous animal, or absorbed from wounds. (See Glanders.) Poisons act in one of three ways.

(1.) Irritant Poisons are those poisons the symptoms of which are inflammation, irritation, and pain. Examples—arsenic, bichloride of mercury, lead, baryta, copper, and the Spanish fly.

Treatment. The plan to be adopted in this class of poisons in the horse is: Give him large quantities of the white of eggs, milk, linseed oil; and remove the poison as speedily as possible by giving large quantities of linseed oil—say two quarts. The horse cannot vomit; hence, it is difficult to procure a prompt evacuation of the stomach. If the pain be great, give aconite to subdue it, and to keep down inflammation and sympathetic fever.

(2.) Narcotic Poisons.—Poisons which act on the brain and nervous centres, producing stupidity or coma.

Treatment. Give four grains of strychnia nux vomica in a few pints of gruel made with vinegar. Keep the horse walking around, and place chopped ice in a bag, and put it on the forehead.

(3.) Narcotic Acrid Poisons.—Poisons acting as the above, and causing irritation, inflammation, fever, and pain. Examples of this class are, nux vomica and veratria.

Treatment. Aconite will not only relieve the pain, but is an excellent antidote for strychnia; and for aconite, strychnia may be given with advantage in cases of this variety of poisoning.

Poisoning from lead and copper is most frequent in the country, or in the vicinity of lead and copper-smelting works, or in pastures where manure from large towns and cities is spread, or on farms where the water is conveyed in leaden pipes, or is kept in troughs and cisterns lined with lead. Pieces of lime and nails, or scraps of iron finding their way into leaden troughs, cause oxidation of the lead, forming sugar of lead—a bad poison. Not long since, heavy damages were awarded a farmer who had lost several head of cows from lead poisoning, occasioned by the *spray* of leaden bullets shot against a stone wall by a rifle, or military company—the fringes of lead spread upon the grass, being converted into the sugar, or oxide of that metal, and the cows gathering it with the pasture.

Treatment. Give large doses of the white of eggs, and linseed oil, in either lead or copper poisoning, to shield the coats of the stomach and bowels, and to remove it from the body altogether. Happily for his owner, large quantities of poisonous materials are necessary to destroy the life of the horse. Materials which will destroy man, dog, and the pig, will not, in many instances, have effect on the horse, sheep, and cattle. Antimony, an active and deadly poison, when given to omnivorous animals, has no more effect in a poisonous point of view than the same quantity of earth, when given to herbivorous animals. Hence, tartar emetic is now no longer used as a nauseant in the treatment of horses and cattle, when laboring under lung diseases, however useful it is in the same disease in man and the dog.

Poll-evil.—This affection of the back part of the head is well known to horsemen, without much of a description being given. It consists in suppurative inflammation forming pus in the form of a simple abscess, or in the form of fistula (which see).

Cause. Injury to the part, or disease of the bone.

Treatment. As soon as the swelling has become a little soft, have it opened without delay, before the pus has time to burrow down among the bones of the neck, and cause disease in them. Make the opening large and deep enough so as to admit three fingers, that the abscess can be swabbed out with a piece of sponge or cloth tied on the end of a stick, to remove the pus. This will

have to be done twice in the day, till no more pus can be brought out.

Occasionally syringe or squirt cold water into the sore, and swab it out again, till completely dry. Then apply the following, once in a day, with a swab: Creosote, one ounce; oil of olives, two ounces; oil of turpentine, one ounce; mix. In applying the mixture do not use the swab too freely, as it may break down the granulations or the healing processes that are springing up to fill the hole or cavity, and thereby prevent a perfect cure.

When poll-evil is the result of diseased bone, and partakes of a fistulous character, it will not be so easily healed or cured; for the underlying bone being carious, and becoming necrosed, before exfoliation or separation of the dead bone takes place the horse may be dead—the process taking years to perfect itself. And when it is cured, there is usually a stiff neck remaining ever after. Ten drops of sulphuric acid poured in the fistulous opening of the swelling or sore will hasten recovery very much and in many cases effect a good and speedy cure. Once a day will be often enough, and if there be more than one fistulous opening, drop the acid into one to-day and the other to-morrow, and continue from day to day, till each and every opening ceases to discharge a whitish gray matter, and a dry looking opening is presented. Afterwards, use a solution of the sulphate of zinc: one drachm of the zinc to four ounces of water, will answer the purpose. Horses having sores of all kinds on their body should be well fed and cared for.

Polypi.—These are diseased enlargements, which grow upon the mucous membranes of the nose and ear, and in the uterus or womb of mares.

Treatment. If they are small, they are cured by touching them with a stick of caustic potassa; if large, cut them off with a sharp knife or scissors, and apply a weak solution of blue stone to the sore till it is healed.

Predisposing Causes.—Causes which render an animal susceptible to disease. For example, a young horse standing in the stable from day to day becomes predisposed to disease of the throat and lungs, when put to any exertion. Old age is a predisposing cause of disease. Some animals, as well as men, are more

disposed to disease than others. From their temperament, and certain conditions of the solids and fluids of the body, the body is more susceptible to what is called a predisposing cause.

Prick of the Foot.—(See Foot Diseases.)

Probang.—There are two of these instruments. One is for forcing obstructions down the gullet in cases of choking, and the other an instrument used in giving to horses, etc., medicine in a solid form or in the form of a ball or bolus.

Procidenta.—A term used to denote the falling down of the womb, or foal bed in brood mares. This affection is very common in milch cows; not so in mares.

Prognosis.—The foretelling the course and event of a disease, from its symptoms. Prognosis may be favorable or unfavorable. Nothing can so well distinguish the scientific veterinary surgeon from the blockhead in such matters as correct prognosis.

Prophylactics.—Is a term applied to the means made, or adopted, for the preservation of health, and the prevention of disease.

Proud Flesh.—A common name applied to hasty granulations in a sore or wound, which presents a fungous appearance. To cure and prevent this, sprinkle a little white sugar, powdered blue stone, or a little red precipitate on the surface.

Prurigo.—An itchiness of the skin, which is best treated by the sulphite of soda, in half ounce doses, given every night in cut feed for a week. (See Skin Diseases.)

Pulse.—This is the stroke or beat of an artery, consequent upon its alternate dilation and contraction caused by the action of the heart. The pulse is subject to many variations, even not depending upon disease. It is also liable to changes from temporary excitement, as from severe heat, etc. Medicines act upon the circulation, and consequently change the beat and character of the pulse. If the disease be debility, diffusible stimulants will be required to raise the pulse; and in order to depress the circulation, as in inflammation and fever, nauseants are indicated, such as aconite and veratrum. (See Pulse, in Introductory Remarks.)

Puncture.—Wounds inflicted with a sharp-pointed tool, as a staple or hay-fork, etc. Punctured wounds are dangerous, depending upon their depth and locality, and should be treated by free

openings from the bottom of the wound, to allow the exposed fluids to escape. The parts should be dressed with simple ointment. (See Medicines and Prescriptions.)

Purgatives.—A class of medicines capable of cleansing or emptying the bowels. Purgatives are distinguished from laxatives, only in the quantity given. Six to eight drachms of aloes will act as a purgative, and two or three drachms will act as a laxative. When laxatives are necessary, repeat at distant intervals.

Purpura.—This is a disease which is but rarely seen, and consists in the surface of the whole body and legs being covered with pimples, or small boils, which discharge a livid or purple-colored fluid. The animal is very much debilitated; and accompanied with sympathetic fever, we not unfrequently see swellings of the head and parts of the body, with the legs very thick, and the same colored fluid oozing out of them. Invariably the horse is scarcely able to move. The worst form of this disease is the purpura hæmoragica, or bleeding purpura. The small boils are the result of extravasation from the minute blood vessels under the skin.

Cause. Venous congestion of the whole surface of the body, and possible a deterioration of the blood itself.

Treatment. Support the strength, to keep off typhoid symptoms; enrich the blood, and attend to the surface sores. For this purpose, give the following powders, night and morning: Powdered sulphate of iron, three ounces; gentian root, two ounces and a half; carbonate of ammonia, four ounces. Mix, and divide into twelve powders, one to be given twice in the day. Give, occasionally, forty to sixty drops of commercial sulphuric acid in a bucket of cold water. Feed the horse well, and apply to the sores olive oil, three ounces, and creosote, one ounce, once every second day, and wash the sores twice a week. Horses once attacked by this disease are ever after liable to it.

Pus.—This is the material found in abscesses. Pus may be healthy, or laudable, as it is called. Unhealthy, when it is mixed with blood and has a stinking smell. Healthy pus is of the thickness and color of cream, and is insoluble in water.

Putrefaction.—Certain diseases are regarded as putrid, where the discharges have a black appearance and putrid smell. When

weakness and debility are present, putrid ulcers spread rapidly. The treatment of putrefaction, in a living animal, should be directed to laying open the sores, so as to get rid of the putrid discharge before it is absorbed into the circulation. Then wash immediately with the solution of the chloride of lime, after which dress the sores with equal parts of olive oil and creosote, and sprinkle them with powdered charcoal. Furnish the horse with good feed to support the strength, and give sulphate of iron and gentian root, two drachms each, night and morning.

Putrid Fever.—(See Typhosus.)

Pyemia.—This is a term signifying pus in the blood, acting and setting up fermentations. Examples: Tubercles in the lungs, glanders, farcy, and grease. (All of which see.)

Quack Medicines.—These are medicines prepared according to private or secret receipts, and are puffed up in newspapers, and private circulars, as infallible cures for most all diseases which can be named, in either man or beast; either for external application or internal administration. No subject in medicine has been more fully exposed than the great and absurd pretensions of these medicines. But, notwithstanding all this, the credulity of even the best class of society is great, the readiest victims being found among them. It surely requires no argument to show how dangerous must be the indiscriminate use of powerful drugs when compounded by parties who likely never had the slightest opportunity to acquire a medical education, and why such persons cannot cure, by their remedies, diseases which are, or may be, deemed incurable, and have defied the most consummate skill and experience of the veterinary medical world.

Quinsy.—A name given to sore throat. (See Distemper and Influenza.)

Quittor.—The term is used in England for a disease in the foot of a fistulous character. (See Foot Diseases.)

Rabies.—(See Hydrophobia.)

Rachitis.—A disease of the bones of young animals, due to a deficiency of earthy matter (lime), which causes the bones to yield, being too soft. In colts of the first year, some will be observed to stand so close at the knees, that one joint touches the other, which gives the fore legs a curious looking twist, with the

feet turned out and the knees bent in. Colts so affected soon get well when they are supplied with good, nutritious food, in which the phosphate of lime predominates. Rachitis (pronounced racketis), in old horses, is seldom seen; and when it is, it is in the bones of the back or lumbar vertebræ, is characterized by swellings of an irregular kind, with water oozing from them, and is called hydro-rachitis or spina-bifida. Horses so affected are not fit for work with weight upon the back. (See Deformities.)

Resolution.—This is the most favorable termination of inflammation, and leaves the inflamed part in the same state or condition in which it was before it was attacked.

Respiration.—The alternate inspiration and expiration of air performed for the purpose of exchanging the hydrogen and carbon for oxygen. The air being brought in contact with the blood, as it circulates through the lungs, the oxygen unites with it, and the nitrogen and carbonic acid gas is returned by expiration. The oxygen and some of the inhaled air is united in the lungs with free hydrogen, which is given out from the lungs, and is readily seen issuing from the nostrils on a frosty morning, or when the thermometer is about 40°.

Revulsion.—A second attack of disease, but in a remote or different part of the body from which the first attack had its seat. Example: If an eruption, or the abscess of strangles be repelled from the outside of the body, we will find it attacking an internal organ. (See Metastasis.)

Rheumatism.—In no disease of the horse are there so many errors and mistakes committed; not only as to the nature of the affection, but its mode of treatment. Horsemen and horse doctors have not yet learned that there is a difference between rheumatism and FOUNDER, whether acute or chronic, and how to distinguish one from the other. The difference between acute or inflammatory rheumatism and acute founder is this: In rheumatism there is not only pain, but great fever and excitement, and its seat is in the joints of the legs; in founder we have pain, but no fever, and the disease is confined to the feet alone. (See Laminitis.)

In chronic rheumatism there may be some excuse for such

mistakes, as there is no fever; but there is an inability to move, as if the horse was sprained over the loins. (See Lumbago.)

(1) Acute Rheumatism.—Nothing less but what is called (when man is the subject) rheumatic fever.

Symptoms. Great fever, excitement, and irritation, with extreme pain in the legs and joints; so much so that the stricken horse has not a leg fit to stand upon, and dares not move from the place he occupies, from fear of falling to the ground. In connection with all this disturbance, the horse sweats profusely, and blows or breathes excitedly, having *no* heat in the feet, as in founder. It will be well to remember this, in forming a correct opinion of the case. In severe cases the whole of the muscles of the body are set to quivering, clearly indicating inflammatory rheumatism in full force and degree.

Causes. Sudden check to perspiration, by placing heated horses in a current or draught of cold air, thus preventing the transudation through the skin of its formed and natural secretion, which being absorbed by the blood, and acting as a poison, produces inflammation in the sheaths of the tendons, and of the fibrous parts or tissue.

Treatment. The treatment of acute rheumatism is sometimes unsatisfactory; not that it is incurable, but from the fact that the medicines which frequently cure one will not cure other cases.

Give twenty-five drops of the tincture of aconite root every four hours, till six doses are given. Place the horse in a cool, airy place, with plenty of bedding under him, so as to induce him to lie down; then lightly cover the body, and apply cold water swabs or loose cloths to the legs, keeping them continually wet, from twelve to twenty-four hours. In winter, warm water will answer best. By the time the six doses of aconite have been taken, a great change for the better will have taken place; so much so, that, in many cases, the horse may be left to nature to complete the cure. But, on the other hand, should the disease take a chronic form, give drachm doses of the powdered meadow saffron seeds twice in the day, and occasional doses of sixty drops of sulphuric acid in half a bucket of cold water. Half ounce doses of the sulphite of soda may be given as an alkali. Do not bleed or purge.

(2.) Chronic Rheumatism.—I have no hesitation in saying that chronic rheumatism in a joint is one of the most prolific causes of occult or hidden lameness in horses; while this is so, when there are no swellings to point to as a proof of the correctness of your opinion, many will question your judgment. But it is with this, as with many things in the world—time only being required for a thorough development of the fact.

Treatment of Chronic Rheumatism. Give a few doses of aconite root, followed by the colchicum or saffron seeds, the sulphuric acid and the alkaline, as is recommended in acute rheumatism, but not pushing them to such an active extent. A liniment may be applied to the rheumatic joint or joints composed of chloroform and olive oil, equal parts, to be used once a day, with friction by the hand. One part of the tincture of aconite root, may, in addition, be used to advantage with the chloroform.

(3.) Rheumatism.—*Accompanying Diseases of the Throat.* This combination is often met with, which is due to the fact that the same serous or fibrous tissue or membrane is affected in each of the diseases. Nevertheless, we do not see cases of throat disease following rheumatism; from which we derive the fact that those membranes are not capable of reflecting upwards and backwards their sympathy or feeling as the nerves of the body are. So, therefore, I am inclined to the belief that rheumatism in this form, is the effect of disease in the throat, and not a cause of the disease.

Treatment. Cure the disease in the throat, and the rheumatism will be deprived of its cause and support. (See Influenza and Gastritis Mucosa.)

Ring-bone.—This is a serious affection, and consists of a circle of bone thrown out from the underlying bone. Sometimes, in addition to this, the cartilages of the foot are converted into bone, and laid in the form of a circle; and hence its name, ring-bone. It is most common in the fore legs of heavy, coarse-bred horses, with short and straight up pastern-joints. When it occurs in fine-bred horses, it is usually the hind leg which is affected. Ring-bone does not always cause lameness.

Cause. Hereditary predisposition, from a peculiar formation of pastern-joints, which are found not well adapted to hard work;

and hence, an effort of nature is set up to strengthen parts which are too weak, by converting an elastic substance into a hard and unyielding mass, and a moving hinge into a fixture.

Treatment. If it is of recent origin, and the horse is young, much may be done in the way of a cure, by first removing all heat and inflammation with cold water cloths wrapped round the parts for three days, taking them off at night. At the end of that time, get one drachm of the bin-iodide of mercury, mix with one ounce of lard, and apply one-half of the salve by rubbing it in well for ten minutes. Tie up the horse's head for a few hours, and the next day wash off with soap and warm water, daily anointing the parts with lard or oil for a week; then apply the remainder of the salve in the same way, and proceed as before. In old horses, not much can be done with ringbone, as the bones of old animals contain so much earthy (lime) matter that nothing can act upon it.

Ringworm.—(See Skin Diseases.)

Roaring.—A noise made by some horses when put to work There are many different sounds produced from the same cause, and they are incurable, except when depending upon the presence of tumors, which can be removed. Roaring can be relieved somewhat by placing pads over the faulty nostril. When very bad, an operation called tracheotomy—an opening into the wind-pipe, and keeping a silver tube inserted in it—is sometimes resorted to. By this means a draught horse can be kept at work for many years.

Round Bone.—(See Hip-joint.)

Rowels.—An old-fashioned operation, consisting in an opening made through the skin for a few inches in length, the skin being raised from its attachments, and a piece of leather fitting the cavity placed into it, so that a discharge is set up in a day or two. Times were when this unnecessary cruelty was frequently inflicted upon the poor unoffending horse, but in this humane and progressive age, we only occasionally meet with the barbarity. Rowels are an abomination, and inflict a scar or blemish, which never leaves the part. The stupidity and ignorance of horse doctors generally, do not allow them to see that the powers of nature are more potent for good in curing the affection than a rowel—to

which is attributed a power or virtue it never possesses. If I should put in a rowel, it would not be with the view of curing disease or sprain, but simply to secure the horse plenty of time in the stable, so that nature could cure the disease herself.

Ruptures.—The protrusion of some portion of the bowels or intestines out of their proper place. The groin, the navel, sides of the belly, and scrotum, or testicle bag, are the places were ruptures usually show themselves, and it is the variety of situation that gives rise to the many species of rupture or hernia.

(1.) Inguinal Rupture.—In the United States, the horses are mostly all castrated, which fact accounts for the rare occurrence of this variety of rupture. The operation of castration completely closes the inguinal ring or opening through which pass the spermatic cord, testes, etc., thus preventing the possibility of rupture in that direction. When this kind of rupture takes place it is in stallions and uncastrated colts, and requires for its cure the castration of the horse or colt by what is called the *covered* operation, that is, by leaving the *tunica vaginalis*, or inner covering of the testes entire and uncut, and placing the clamps over it, allowing the testes or stones to fall off, or be removed in two days from the time of operation. As soon as this kind of rupture is observed, have the horse or colt castrated at once.

(2.) Scrotal Rupture.—This variety of rupture, entirely confined to the testicle bag, or scrotal sac, is also the affection of uncut horses, and is caused by relaxation of the fibrous tissue around the inguinal ring. This is a kind of rupture which comes and goes, as if it were an intermittent affection. The rupture, or large swelling, during rest will entirely disappear, and return during exercise, sometimes with violence, throwing the horse, perhaps, into a fit of colic, and inducing strangulation and death of the horse. Scrotal rupture is sometimes confined to one side only of the scrotum. If in time the animal should not die from strangulation of the bowel, the rupture will sometimes increase to an enormous size, hanging far down, and filling up the space in and between the hind legs.

Treatment. The same as for inguinal hernia. Of course, in both cases, care should first be taken to push back the bowels through the ring into the belly before removing the testicles. Scrotal

rupture should not be confounded with hydrocele, or water in the scrotal sac. (See Dropsy.)

(3.) Congenital Rupture.—This is a species of rupture observed at the birth of the foal or colt, and is the least dangerous of all the varieties of ruptures, although the rupture continues to grow and increase in size until the fourth to the six month of the colt's age, and then gradually and progressively disappears altogether, If, however, it should not at the end of that time diminish in size and volume, a tolerably stout and tight collar or bandage may be placed around the body, covering the rupture. This band should be kept in place by a broad collar or cloth attached to each side of the body bandage, and passing in front of the breast, with another around the back parts of the hips—thus preventing a backward or forward movement of the body bandage.

If rupture should occur in a few days after the birth of the colt, it should, to all intents and purposes, be classed as congenital rupture, and be treated accordingly.

Congenital rupture is the same as what is called by some writers umbilical rupture, which is correct as far as it goes; but congenital rupture includes not only the navel, but the scrotal also. The navel variety can be most successfully treated by letting it alone; or, in some cases, by the application of a bandage. When, however, in the scrotum, castration is the only cure, and a bandage in this case would not only be useless, but hurtful to the colt.

(4.) Ventral Rupture.— This is, when the bowel produces through any part of the belly, excepting at the unbilicus or navel, or any natural opening, and is generally the result of injury or accident, as from a hook from the horn of a cow, or the kick of a horse. The common place where this kind of rupture is usually seen, is on the lower portion of the belly, between the ribs and at the flanks.

Symptoms. A large, puffy swelling which can be lessened in size and forced into the cavity of the belly again, by merely pressing against it. The skin will be loose when the bowel is thus pushed in; and when the pressure has ceased, the enlargement or swelling returns at once, and fills up the loose skin.

Treatment. In most cases, let the enlargement alone; as, in nearly all instances, no inconvenience from it will be experienced

by the horse. The only way to reduce such a rupture is, by gathering and holding the loose skin, and covering the rupture after the bowel has been pushed into its place by means of long clamps, like a long vise, till the skin falls off. This cure is worse than the affection it is intended to remedy; for by breaking the skin the bowels are exposed to the air and the uncertainty of the edges of the skin uniting firmly together. This is frequently, also, more than can be expected, as the horse is not a rational being, and cannot be told to stand this or that way, in this or that position. If he experiences any pain, he will become restless, and lie down, and roll; and then what of the nicely adjusted clamps? In short, the horse will die in a few hours.

(5.) RUPTURE.—*Of Castration.* This variety of rupture sometimes follows immediately, or a few days, after the operation of castration.

Causes. When the rupture occurs as soon as the horse rises from the operation, it is produced by the violence of the struggling, or rising with too much of a jerk. When occurring a few days after the operation, the cause may be laid to the wound not healing and uniting properly.

Symptoms. As in colic; the horse rising, lying down, pawing, rolling, sweating; high fever and inflammation; and finally, gangrene, or mortification of the parts, and death of the horse.

General Remarks. The termination of ruptures of all kinds and varieties most to be dreaded, is that condition known as strangulation, which occurrence is indicated by the pawing, rolling, sweating, and restive condition of the horse, etc. If not relieved in a very short time, he will die. To reduce strangulation, he must be secured, and fastened; and all conceivable ingenuity must be exercised to get the bowels back into their proper place. No rule can be laid down to accomplish this, as some ruptures are reducible, and others are not. But the hands of the operator must be well oiled when handling the bowels, and the bowels kept scrupulously clean; and when they have been successfully placed into their proper cavity, the horse will be at rest, and relieved from pain. To prevent the bowels from returning again, the rupture must be closed by skewers made of iron, or stiff wood, passed through the lips of each side of the wound, half an inch from the

edge, with waxed cord wound round and over the skewers, in the form of the figure 8.

Metallic or silver wire is used by scientific veterinary surgeons in securing the edges of the skin of ruptures and injuries to the belly of all domestic animals, as the best and most successful plan.

Ruptures of the stomach, bowels and diaphragm, are occasionally the immediate cause of death in cases of colic. (See Hock, etc.)

Saddle Galls.—Sores produced by the saddle and other portions of the harness, and are best treated by the compound tincture of aloes. When the sores become hard and firm, like warts, use the ointment of iodide of mercury. (See Medicines and Prescriptions.) Remove the cause of the trouble by attending to the saddle and harness, and if no fault be found with the stuffing of the saddle, cut a hole in the padding sufficiently large to accommodate the sore without touching it.

Sallenders.—(See Mallenders.)

Saliva.—A fluid secreted by the salivary glands, which serves to moisten the mouth, and is swallowed with the food. When horses are feeding, the saliva mixes with the feed, and resolves, dissolves, and changes into a soft mass fit to be swallowed. (See Parotid Duct.)

Salivation.—This is an increased flow of saliva induced in the horse by mercury and other medicines, and is often seen in horses feeding upon the second crop of clover late in the fall of the year, or after slight frosts; which fact sufficiently accounts not only for the salvation of, but also affords the reason why horses so feeding lose flesh and become thin and weak, although apparently feeding upon abundance.

Second crop clover grows fast, is soft, and full of moisture, while the cool nights arrest its mushroom growth, and the moisture it contains in great quantity is converted from a sweet and nutritious substance into a sour and acidulous fluid, not unlike vinegar or acetic acid. The acid so formed within the clover leaf and stem is pressed out by the act of mastication or chewing, stimulating the fauces of the mouth and the salivary glands to a great extent, and taxing the substance of the body for the saliva to meet an

enormous demand. Hence, the weakness and loss of flesh of horses so fed.

Sand Cracks.—(See Foot Diseases.)

Sanious Pus.—Pus mixed with water and blood; unhealthy pus.

Scalds.—(See Burns.)

Scald Mouth.—(See Mouth Diseases.)

Scarlatina.—A disease newly discovered in light-colored horses, attended by sore throat, as in man, and with slight fever and dry skin—the glands of the neck are slightly swollen, and in about two days the lining membranes within the nose and lips become studded with scarlet spots about the size of a garden pea, which run together. In light bay horses will be seen patches from which the hair falls off and is replaced by a coat of a lighter color, thus making the animal look as if he had had an attack of varioloid or small-pox. Scarlatina is an eruptive fever, running a fixed and definite course, and is closely allied to purpura, influenza and strangles (all of which see).

Treatment. Place the horse in a cool place, and give small doses of aconite, followed by gentian and carbonate of ammonia. In a few days iron may be added. (See Medicines.)

Scratches.—(See Grease, Phagadena, and Frost Bites.)

Schirrus.—Pronounced *skirrus*, and signifying induration or hardening of any structure, but now used only when speaking of cancer.

Scouring.—(See Diarrhœa.)

Scrotum.—The bag or skin covering the testicles of the stallion, which is the seat of large watery swellings, as a sequel to debilitating disease, or disease treated by starving, bleeding, etc. If the swelling does not grow less after extra feed is allowed, and a few iron powders are given, the scrotum will have to be opened a little on both sides to allow the fluid to flow out. Do not mistake the swelling for scrotal rupture. (See Ruptures.)

Scurf.—A scaly eruption on the skin of badly-groomed and cared for horses. It is cured by good grooming, good feeding, and, in some cases, a change in stabling.

Secretion.—The product secreted or separated from the blood. Secreted products are of two kinds:

(1.) *Excretion*, or matter separated by animal bodies, and thrown off on account of their noxious or effete qualities. Examples—the urine, the dung, sweat, and carbonic acid gas from the lungs.

(2.) *Secretion* is matter separated from the blood for further use, and for the performance of various actions in the living system. Example—bile, saliva, etc.

Sedatives.—Medicines which lessen pain, and should, therefore, be called calmatives. Aconite is the most certain and successful sedative and calmative we have to offer, and will seldom disappoint the highest expectations, if used properly and in good time.

Serum.—The thin, colorless fluid, which separates from the blood.

Serous Abscess.—A variety of abscess seen usually about the breasts of horses. It arises from injury followed by the pouring of a serum from the blood into the injured part, which, not being absorbed readily, remains there in the form of a large ovoid flattened bag. A blind man, who never saw a tumor, could tell that it contained fluid. Indeed, wherever dropsical swellings are not absorbed, a serous abscess will be formed.

Treatment. Open it with a knife, making a large opening through the skin, only at the lowest soft part, so the serum will run out without pressing. Inject once or twice with cold water, and anoint the skin with lard to prevent it from cracking or becoming dry.

Seton.—A piece of tape placed under the skin by means of a needle made for the purpose. Setons are rarely of use, and are often torn violently out, making an ugly sore.

Shivers.—So called because the horse is seized with tremor of the muscles of the whole body, when any attempt is made to push him back. The tail is erect as in cases of lock-jaw.

Causes. Tumors on the ventricles of the brain.

Shoeing of Sound Feet.—Most diseases of the feet, and every stumble are, either directly or indirectly, the result of bad shoeing. Horse-shoers have long been in the habit of using the knife and rasp too freely to keep feet sound very long so. When the shoe is carefully removed, the wall or crust, where a well seated shoe should only rest, should be gently rasped to remove frag-

ments of loose horn and old nails. In deep, well-made feet, the sole requires paring out till it is in the form of a cup, but not too thin—the bearing surface, or wall, to be made level for the new shoe. This is all that is required in a sound foot. The frog must be left to fill its functions. Above all, do not let the rasp be used upon the surface of the foot, for it is the skin of the hoof, and by its removal you expose it to every chance in moisture and dryness, and leave it weak, dry, porous and brittle.

The shoe should be a plain one, equally broad and wide from heel to toe, and put on without *seating;* for why bring a concave foot in contact with a concave shoe? The toe should be slightly turned up, and not too short at the heels. The hind shoes should be provided with heels.

The *nail holes* should be three on the outside, and two on the inside, and made straight through the iron, and not incline inwards, and the shoe fitted to the foot, and not the foot to the shoe.

Dray horses should be shod with tips, or toes and heels, which secure firmness of tread, and greater power when drawing heavy loads, especially in cities with smooth paved streets.

Shoeing Unsound Feet.—Feet with corns, weak, flat feet, convexed sole, and sand or quarter cracked feet, should have shoes well seated: and it is advisable to throw some extra weight upon the frog, for which purpose a bar-shoe should be used. (See Foot Diseases.) Leather soles are useful in weak-soled feet when the horse steps high and is much used upon city streets. One-sided nailing answers well for weak heels. Ring-boned animals should be shod with easy fitting shoes, to avoid jarring. Horses having a tendency to navicular or coffin-joint disease should have shoes turned up a little at the toe, with the ground surface of the wall well cut away, and the sole and frog untouched. The art of shoeing horses consists in fitting a shoe to the foot of a horse, for the purpose of protecting, and, at the same time, not injuring it.

Shoulder Lameness.—This is produced by a slip, or side-fall, and is frequent with horses in cities having broad rails laid on the streets for railroad purposes. In wet weather these rails are very slippery; hence the horse has no foothold, the leg is stretched far out before the animal and the muscles of the shoulders, and

in some cases the shoulder-joint is involved. A much more serious affair than simple shoulder sprain is the result.

Shoulder lameness is common to young horses when ploughing in the furrow.

Symptoms. The absence of heat; tenderness, and swelling in any other part of the leg or foot. Always find out with certainty where there is no lameness and the situation of lameness will very soon be apparent. Negative and positive symptoms should always be well considered before coming to a final conclusion, as by doing so the situation or trouble is so narrowed down that a mistake can scarcely occur. Shoulder lameness, however, is known by the horse stepping longer with the lame leg, and shorter with the sound one; and, excepting in very severe cases, the horse will not only point the leg out from the body, but carry it also to the side of the body. Now, in most sprains and diseases in the foot, the leg will be pointed straight out without any side position.

Take the leg which is lame by the pastern, and gently carry, or pull it straight out from the body of the horse in front, and gently also to the outside; if it should be shoulder lameness, the horse will not only show evidences of pain, but will in many cases, depending upon the spirit and animation of the horse, get up from the ground with the sound leg and endeavor to wrest the lame leg from you.

In very severe cases, when occurring from a bruise, the horse will stand on his toe, which is evidence of contusion of the shoulder.

Treatment. Absolute and entire rest, warm water cloths applied for two days, followed by cold water cloths, in the same way, and for as many days. Then a slight blister of the Spanish fly may be rubbed into the skin of the shoulder, taking care that none of it is put on at the situation of the collar, as it would render the part a little tender for a while by friction om the collar. Take Spanish fly in powder, one drachm; hog's lard, six drachms; mix, and make an ointment, or salve, and rub the better half of it into the skin. Next day wash off with warm water (not hot), and when dry from washing, anoint the blistered parts with oil or lard, daily, for a week. It is not advisable to put horses to work or even exercise, too soon after getting well from lameness.

Shoulder-joint Lameness.—This is a more serious form of lameness than sprain of the muscles of the shoulder. It consists in the softening of the articular cartilages of the joint membranes, and great secretion of unhealthy synovia (joint oil), producing bulging of the ligaments (capsular), and covering the joint. It can be detected by making the horse stand upon the lame limb, and by holding up the other one. This is a disease similar to spavin in the hock-joint, which accounts for the unsatisfactory results of treatment.

Symptoms. The horse drags his toe, and throws his leg out at every movement of the limb.

Treatment. As before stated, this is rather unsatisfactory, from the fact that the cartilages are likely to be destroyed, and the bone underneath apt to become ulcerated; but if taken in time, much good can be done. In many cases, a cure can be effected by the ointment of red iodide of mercury, well rubbed in once a week, for a few times.

Take of bin iodide of mercury, two drachms; hog's lard, two ounces. Mix well on the bottom of a dinner plate, or a smooth slate, with a table knife. Of this ointment, take one-fourth and rub well into the joint, tying up the horse's head for a few hours, to prevent his getting at the shoulder with his mouth; allow soft bedding for the front feet to stand upon, as the horse will stamp with his foot on the floor—for the action of this ointment is considered to be as painful as the hot iron, for half an hour from the time it begins to act till the parts commence to swell from its *splendid* effects. Hence, firing irons are now not much used, except in the hands of old fogies. Daily, oil or grease the parts for a week, then apply as before, and remember that to get all the benefit of this ointment, it must be well rubbed in the parts.

Side Bones.—A species of ring-bone; only the side cartilages of the foot are converted into bone, and do not, as in ring-bone, extend round the coronet, or portion immediately above the hoof. The cause and treatment are the same as in ring-bone (which see).

Sinus.—A long, narrow and ulcerated track, communicating either with the inside of an abscess or diseased bone. (See Fistula and Poll-Evil.)

Sitfasts.—These are hard and insensible tumors, sometimes

called warbles, and are caused by undue pressure from the harness.

Treatment. Rub in, about the size of a bean, of the ointment of red iodide of mercury. (See Prescriptions and Medicines.)

Skeleton of the Horse, Bones of the.—The skeleton is composed of two hundred and forty-seven separate bones, which are united by joints to form the spine, thorax, pelvis, tail, fore and hind extremities. The spine is finished anteriorly by the head, which is divided into the cranium and face, and contains the teeth. Suspended from the head is the os hyoides, which completes the number of bones. Thus:—

The spine consists of 7 cervical, 18 dorsal, and 6 lumbar vertebræ—Total	31
The thorax is made up of the dorsal vertebræ, with 18 ribs on each side, and the sternum in the middle—Total	37
The pelvis comprises 2 ossa innominata (or illium, ischium, and pubes), and 1 secrum—Total	3
The tail contains on the average 17 bones	17
The fore extremity is made up on each side of the scapula, humerus, os brachii, and 8 carpal bones, 3 metacarpal, os suffraginis, os coronæ, os pedis, os naviculare, 2 ossa sesamoidea—Total on both sides	40
The hind extremity has the femur, patella, tibia, fibula, 6 tarsal bones, 3 metatarsals, os suffraginis, os coronæ, os pedis, os naviculare, 2 ossa sesamoidea—Total	38
Bones of the cranium	10
Bones of the face and lower jaw	18
Teeth	40
Bones of the internal ear, 4 in each organ	8
Os hyoides, or bone of the tongue, made up of five sections	5
Grand total	247

Skin Diseases.—There are many, and apparently different varieties of skin diseases described by writers, many of which are the same, and produced by the same cause, but present different appearances in different animals, and in different stages and con-

ditions of the affection. Where the same cause can be properly assigned in producing different diseases, although apparently dissimilar, the treatment must be the same. Thus, if the *acari* is the cause of more than one kind of skin disease, of course the treatment must be directed to the destruction or removal of this insect or mite, before a cure can be effected; so, also, with faulty assimilation or digestion, which so often gives rise to skin disease, and which must be improved and corrected before the effect (disease), will cease and be cured.

(1.) Baldness.—Parts of the skin of the horse become denuded of the hair, occasioned by minute or small pimples, which usually contain a fluid, and burst, or break, carrying the hair with it. These pimples, or small tumors, however, are sometimes vesicular, sometimes popular, and sometimes scaly. They are caused by faulty digestion, and should be treated by soft feed, or fresh-cut grass. The hair will grow again.

Baldness is caused by scalds, burns, and blisters; and where the true skin is not entirely destroyed, the hair can be restored by using a weak ointment of iodine—iodine, half a drachm; hog's lard, eight drachms; mix, and apply by rubbing with the hand, once every third day, till there are evidences of a growth of hair springing up. Gunpowder and lard have no more power in causing hair to grow, than as much lard, saltpetre, sulphur, and charcoal would have; nor is it to be compared to the iodine, because, if iodine does not restore the hair in all cases, it will certainly dye or stain the skin a dark color, which cannot be washed off; and hence, in dark-skinned horses, is of much use in removing the bare, bald-look of a white spot.

(2.) Mange, Itch, Psora, or Scabies.

Cause. The result of an insect breeding and burrowing in the skin, and is called *acari*, a variety of mite or animalcule.

Symptoms. At first, a fine crop of pustules, not at this time always seen, about the head and neck, and under the mane. By the horse rubbing himself against whatever he can get at, the hair falls off, and exposes an angry and red-colored skin, with red points and lines, fissures, wrinkles, or scratches. After this condition, we have dryness, scruffiness, baldness, and whitening of the skin, accompanied with great itchiness.

Treatment. The best plan for curing this disease in horses, is as follows: Take fine sea-sand, such as is used by stable-men for scouring steel bits, and rub the affected parts well for a few minutes. Then wash the parts well with good soap and water, and a brush, after which dry them carefully. Then anoint with the following ointment: Powdered sulphur, one ounce; hog's lard, two ounces; mix. The following is more cleanly: Liver of sulphur, or hepar of sulphur, two to three ounces; cold water, one quart; mix, and make a wash. This plan, with either of these mixtures properly applied, will not only kill the insect, but will effect a cure. This disease has baffled many who have attempted its cure without first reaching the insect, by scouring him out of his covering, and killing him with sulphur—a highly destructive article to parasitic life.

Observe. This disease is contagious. Stall-posts, mangers, harness, combs, brushes, etc., used about the horse, should be subjected to great heat either by boiling or steaming. Trees, gates and rubbing-posts in the field, should be washed with water, and coated with a mixture of sulphur, lime and water.

(3.) Eczema.—This is an affection peculiar to some horses during the summer months. By close inspection large numbers of minute elevations, or raised parts, closely joining each other, and filled with a watery fluid, will be observed; the skin will soon present a red and angry look, the hair be short and dry, accompanied with extreme itchiness—so much so sometimes, that horses so affected become almost unmanageable. The situation of this disease is usually in the hind legs, and is considered hereditary. At all events, when a horse is once attacked by it, it is liable to return again with the warm weather.

Cause. A peculiar condition of the blood, developed by heat.

Treatment. This disease in my hands, in several carriage horses which were rendered completely useless in the summer months, has not only been cured, but also prevented from returning, by the administering of half ounce doses of the sulphite of soda, for two weeks previous to the hot weather, once a day. In addition to this, a few bundles of fresh grass, cut from the borders of several gardens, were given. The soda is designed to neutralize ferments in the blood; and the fresh cut grass to assist by its

action on the stomach and bowels, and ultimately upon the blood itself.

(4.) SURFEIT.—A disease making its appearance in the spring of the year in fat horses that are short and well built. It is characterized by tumors about the size of a grain of Indian corn, covering the whole body as completely as the nettle-rash does that of children, and does not generally cause itching, nor is it, like some skin diseases, contagious.

Cause. Robust stamina.

Treatment. Give soft or slop feed composed of bran, cut hay, cold water, and salt, for a few days. Give grass, if it can be had, without any additional feed. A few doses of the sulphite of soda will be of advantage.

Bleeding and purging have arrested the tumors in their growth, but unfortunately they become permanent fixtures, only to be removed by calomel and opium, which cause their absorption. In this event, take calomel, thirty grains; opium, ten grains; mix, and give once a day for a week or ten days. Good feeding will have to be given.

RINGWORM.—*Porrigo*, and *Favus* are names given to this disease.

Symptoms. Small circular patches, or scales, sometimes running together, forming large crusts and ulcers under them, in which insects breed. This is a contagious disease, and is communicated from man to animals, and animals to man. The microscope has shown the presence of fungi in the scab of ringworm, but whether it be merely the effect of the disease, or otherwise, is not at present known. It is, however, more likely to be the cause.

Treatment. Wash and keep the parts clean, and aim at destroying the fungi. For this purpose remove the scab as soon as formed, and apply a solution of oxalic acid to the surface, using fifteen grains of the acid to an ounce of water. Tar ointment, creosote, sulphur, and mercury, have all been tried; but none of these meet with so much success as the solution of oxalic acid, just as recommended. For other diseases of the skin, see Grease, Mallenders, Sallenders, Tumors and Boils.

Slobbering.—This is traceable in horses to a variety of causes. We may enumerate large doses of aconite, or veratrum; also sore or scald mouth, and in some cases poisoning. Slobbering from

ding second crop clover, will be found treated of under the article SALIVATION (which see).

Slough.—The separation of a diseased or dead part from the healthy portion. A slough may be of greater or less thickness, and may include the skin and flesh to a considerable depth—as from the centre of an abscess. (See Gangrene and Mortification.)

Sores.—Healthy and unhealthy sores occur in, or on, all parts of the body of the horse. Healthy sores are best treated by the tincture of aloes, or myrrh, or simple ointment. (See Medicines and Prescriptions.) Unhealthy sores should be treated, first, by the application of some caustic, or powdered blue stone, nitrate of silver, or caustic potassa, which will make an unhealthy sore a simple and healthy one. To be treated as the above.

SORE MOUTH.—(See Mouth Diseases.)

SORE FOOT.—(See Foot Diseases.)

SORE THROAT.—(See Catarrh, Cold, and Bronchitis.)

SORE BACK.—Re-stuff the saddle, and apply the tincture of aloes or myrrh.

SORE SHOULDERS.—See to the collar, and apply as in sore back.

SORE NECK.—A variety of this disease presents itself about the place where the collar usually rests and presses when descending a hill in double team. They are very troublesome and difficult to heal, if the horse is kept at work, and cause great irritation and uneasiness. Frequently, when the hand is laid upon it, the horse, if he be a spirited animal, will plunge in the stall, and even kick, however quiet he may be at other times.

Treatment. Apply simple ointment, and place a firm but strong piece of leather over it, so that the collar, when put on, can rest upon and slide over it, instead of upon the mane and neck.

Soundness.—This is when a horse has nothing about him that does or is likely to interfere with his feeding, working or general usefulness.

Spavin.—A variety of disease affecting the hock-joint. Spavin is not now looked upon as in the days of Oliver Goldsmith and William Shakspeare, because in the minds of those distinguished men, and some of their readers of the present time, spavin is an enormous enlargement of the hock of the horse; whereas, in some of the worst forms of spavin, there is no enlargement at all, while

the hock-joint is completely destroyed, stiff, or anchylosed. Shakspeare thus refers to Petruchio's horse: "His horse hipped with an old mothy saddle, the stirrups of no kindred; besides possessed with the glanders, and, like to mose in the chine, troubled with the lampas, infected with the fashions, full of wind galls, sped with *spavins*, raied with the yellows, past cure of the fives, stark spoiled with the staggers, begnawn with the bots, swayed in the back, and shoulder shotten, ne'er legged before, and with a half-checked bit, and a head stall of sheep's leather."

(1.) Bog Spavin.—This kind of spavin is situated in front of the hock-joint, and is a soft, fluctuating swelling, which rarely ever causes lameness. It is merely an enlargement or distention of the bursal cavity of the joint, and is filled with the natural fluid of the joint, but increased in quantity, and possibly in some cases a little changed in quality also.

(2.) Blood Spavin.—This is the same as bog spavin, but more extensive, and generally involving the hock-joint on its three sides, front, inside and outside, and giving to the limb a thick, rounded appearance, called thorough-pin (which see). The swelling is soft and fluctuating, and indeed there is no perceptible difference in the nature and result of this form of spavin and the preceding variety, beyond it being more extensive, interfering, perhaps, with the flow of blood in the sub-cutaneous (under the skin) vein, which is seen in front, and partly to the side of the joint, adding very little to the general swelling.

Causes. Hard work and fast driving, especially when horses are young.

Treatment. The application of the ointment of red iodide of mercury, in the hands of some, has done much good; but the enlargement is apt to return when the horse is again put to work, from the fact that more joint-oil or fluid is poured out. Acupuncturation, or forcing small steel instruments into the swelling to let out the fluid, is sometimes resorted to, after which a bandage or truss is fitted to the part to press out the fluid that remains, and to cause the adhesion of the parts together. The difficulty in curing soft spavin is the danger of opening into a cavity or joint containing oil (synovia). An old way of treating such disease, is by striking the parts with a mallet, so as to break the skin, that

the fluid can escape; the blow given to the skin being so great as to set up adhesive inflammation, and a closure of the opening.

(3.) Bone Spavin.—Consists in the sprouting out of irregular bony matter from the bones of the joint, preventing their smooth and proper action over one another, and causing lameness. This bony growth sometimes attains a good size, and in some cases we find one or two of the bones only involved; in others nearly all of them are affected. The situation of bone spavin is on the inside, and in front of the joint.

Symptoms. When horses are what is called breeding bone spavin, ordinarily persons think and say the lameness is in the hip (see Hock), from the action which is reflected by the muscles of the hip at every movement made by the hock-joint, and from the fact that there is no enlargement as yet in the joint. The horse is lame on starting, but gets better after a little while, and after standing will start lame again. In the stable he shifts one hind leg after another, and when resting the lame leg, he stands on the toe. Pain and lameness cease when the joint is consolidated, although remaining a little stiff.

(4.) Occult Spavin.—This is a disease similar to bone spavin, the difference being that there is no enlargement of the joint whatever, although the bones of the joint are all diseased, immovable and stiff. This seems to puzzle and perplex horsemen, because they cannot comprehend a bone spavin without an enlargement of the joint outside; and consequently the poor horse is sometimes blistered and tormented in every part of the leg, but the right place. The cause, results, and effects of this disease are the same as in bone spavin, excepting that there is no enlargement.

Treatment. For the two varieties of spavin, just described, the treatment should be the same. In young horses, the red iodide of mercury in ointment, is the proper treatment. One drachm of bin-iodide of mercury, and one ounce of lard. Mix, and apply once in a week, and lard the parts once a day, till the next application.

Old horses should have a liniment applied, once every second day to the parts. Oil of olives, two ounces; oil of turpentine, one ounce; creosote, one ounce · mix. This will relieve the pain, and

to a great degree the lameness. Spavined horses should have an extra allowance of feed, to keep them in condition equal to their more healthy and fortunate neighbors.

Specks on the Eye.—(See Eye Diseases.)

Speedy Cut.—This is an injury to the knee from the shoe of the opposite fore-foot, and is prevented by driving slower, and nailing the shoe on one side only.

Treatment. Apply cold water cloths, and if the swelling does not all go away, follow with the application of the red iodide of mercury, in the form of an ointment, once a week, for a few times, and lard or grease the parts till the next application. Boots are sometimes used as a preventative.

Spleen Diseases.—The diseases of this organ are obscure, and chiefly consist of *enlargements, tubercles, softening, rupture, and tumors.* The symptoms attending these affections are not well marked.

Splint.—A small bony enlargement, situated usually on the inside of the fore-legs, about midway between the knee and the pastern joint. When splint begins to grow, it sometimes produces lameness by stretching the covering of the bone, which, however, soon accommodates itself to the altered structure.

Cause. Working horses when too young, and before the leg and splint bone have become united. Hence, splints disappear when the horse grows older, and the unity of these bones takes place.

Treatment. One or two applications of this ointment: Red iodide of mercury, or tincture of Spanish fly, one ounce; oil of croton, twenty drops. Mix, and apply with rubbing.

Sprains.—By this term is meant partial displacement; the twisting of a joint with more or less injury to the articulations, ligaments, tendons and their sheaths. At times small portions of the bones of the joint are separated. Indeed, every variety and degree of severity is to be seen in sprains of different parts. Every joint is liable to sprain, but the usual or more common sprains will be found in the pastern or fetlock joint, shoulder and its joint, hock, stifle, back and loins, flexor tendon, suspensory ligaments, etc., produced by a common cause, such as slipping, falling, overwork, the weight of the body, and not unfrequently the load falling upon a part, when not in its proper position for receiving it.

Symptoms. Pain, heat, swelling, tenderness and lameness, more or less severe, depending on the severity of the sprain, and the part affected. In severe sprains, care must be taken to guard against mistakes, and to form a correct judgment of the nature of the injury, whether it be a real or simple sprain, or whether there be fracture or dislocation.

Treatment. Absolute and entire rest, is the principal point to be attended to in the cure of sprains, for a sprain cannot be cured without rest, no matter what other remedies are employed; and, if there be much fever and excitement about the horse, a few doses of aconite will have to be given. Tincture of aconite root, fifteen drops, given three times in the day for two days, will remove fever and irritation. Then apply warm water cloths for three days followed by cold water cloths for the same length of time, taking the cloths off at night, as it is necessary that water must be poured on the cloths every hour, or before the warm ones become cold, and the cold ones become warm. After which, the lameness and swelling will have ceased: or should this not be the case, apply for a few days, once a day, the following liniment: Creosote, one ounce; oil of turpentine, one ounce; oil of olives, two ounces; mix. Be assured the horse is quite well before he is put to work again, as many joint diseases are brought on by mismanaged sprains, which never can be cured. For sprains of different parts of the body see Shoulder and Shoulder Joint Sprains, etc.

Staggers.—A disease familiar to every horseman, and of a serious character. It presents different symptoms in different horses, depending altogether upon the extent to which the brain and nervous centres are affected, and whether the variety be mad, grass, stomach, or sleepy staggers.

(1.) Stomach Staggers.—This is an attack of acute indigestion, from overloading the stomach; digestion is arrested, fomentation is set up, and the evolution or giving off of carbonic acid gas distends the stomach and bowels, and presses on the space allotted for the lungs to play in, depriving them of aerating the blood, thereby affecting the healthy action of the brain and nervous centres, and producing death in from twelve to twenty-four hours.

Treatment. Injections of warm water and soap, and a handful of salt to clean out the bowels, so that the gas can get free passage.

Arrest fermentation by dissolving two ounces of the sulphite of soda in a little water, and giving it at one dose, the dose to be repeated every hour. Mix eight drachms of powdered aloes in a little warm water, and drench the horse with it to stimulate digestion, and open the bowels.

(2.) Grass or Sleepy Staggers.—A chronic variety of stomach staggers, and should be treated as the above variety.

(3.) Mad Staggers.—This is inflammation of the brain, and is sometimes called *Phrenitis.*

Symptoms. Dullness, followed by excitement and madness. The sleepy stage, or the congestive period passing off, then the madness is seen. The horse unconsciously throws and dashes himself about, and sometimes endeavors to climb up the wall. At times ropes will have to be used to keep him from pulling back, and becoming unmanageable, thereby destroying harness, carriages, sometimes other horses, and even the stable itself. The power of a mad horse is great, and a painful sight to see. Finally he becomes exhausted, falls and dies.

Treatment. The horse is not *worth* saving, and rarely can be saved; for nothing can, or will, give relief to a mad horse, but bleeding, and this to so great an extent that life does not rally, and the horse dies, a dull, stupid, and immovable mass, unable to eat or drink. The brain is pressed with fluid and lymph, between the *pia mater* and the *arachnoid.*

Remove a mad horse, as soon as possible, from anything of value, or that can be broken or hurt. Especially remove him from other horses, so that he may not injure them.

Staked. An accident to some portion of the body, but most frequently to the belly, occasioned by leaping fences, or it may be by the horn of an ox, cow, or bull.

Treatment. If the injury be at the belly, the wound having entered it to some depth, ascertain, with the finger, whether any portion of the bowels is injured, or has escaped through the opening. If so, and part of them be torn, sew with small, fine cat-gut (such as is frequently used by fishermen who employ artificial flies as bait), and pass the bowel or intestine into its proper place, closing the wound in the same way as is recommended for rupture of the belly (which see). If the skin is only wounded, treat it as

for simple sore. If the wound is in a fleshy part, and the skin peeled or torn from the flesh, it had better be clipped off, as it will not unite again, but shrink and dry up; hence, it is neither advisable to let it hang, nor to attempt to sew it. Trim off the fragments of loose skin, and treat the wound with a weak solution of blue stone, chloride, or sulphate of zinc. (See Medicines and Prescriptions, and Bleeding Wounds.)

Stings From Bees, Hornets, etc.—Not unfrequently we hear of horses losing their lives from irritation and fever, originating from the stings of these insects.

Treatment. Take acetic acid No. 8, four ounces; powdered camphor, one ounce; mix, and dissolve, then rub a portion of the mixture into the parts most affected. The poison, swelling, irritation, etc., will be at once arrested. In an hour afterwards, anoint the parts with sweet oil or lard. As acetic acid may not be at hand in an emergency like this, strong table, or white wine vinegar should be used, without the camphor. Acetic acid of French manufacture is eight times stronger than ordinary vinegar.

Stifle-joint Lameness.—In the article on Hock-joint I have stated that this form or situation of lameness in the horse is not so common as horsemen and others suppose it to be; nevertheless, no part or function can be declared exempt from accident and disease. It is chiefly, however, an affection of young colts kept on uneven ground, and arises from the wearing away of the toe of the foot, thus inducing dislocation of the stifle, or patella, which slides off the rounded heads of the bones at every step the animal takes.

Treatment. Remove the horse to level pasture, and have him shod with a shoe having a projecting piece of iron attached to the toe, which will prevent the bones from sliding out of place and knuckling at every step.

Stifle Ulceration.—This is a disease of the half-moon shaped cartilages of the joint, and is a serious disease, as all joint affections commonly are.

Symptoms. The leg is held firmly somewhat in advance of the other, and is thrown outwards at every step. The joint is enlarged, and the capsular ligament very much distended, especially

when the animal's weight is thrown upon it, by holding up the sound leg.

Treatment. Not satisfactorily; as ulceration is generally progressive in its character, and frequently destroys the heads of the bones. But the ointment of red iodide of mercury may be tried.

Bin-iodide of mercury, one drachm; hog's lard, one ounce; mix, and apply by rubbing with the hand, once a week, for a month. Lard or oil the parts daily, between each application.

Stomach Diseases.—(See Gastritis, Mucosa, Staggers, Colic and Enteritis.)

Stone in the Bladder.—Are those concretions named *calculi*, formed in the bladder from a diseased condition of the urine.

Symptoms. Pain, an occasional stoppage in the stream of the urine before all is passed, and a straddling gait.

Treatment. In the province of surgery.

Strains.—(See Sprains.)

Strangles.—This is an eruptive fever, characterized by swelling in and between the bones of the lower jaw, terminating in an abscess.

Cause. A specific poison in the blood, which few, if any, horses that live ten years, ever escape. It especially attacks young horses, but is often seen in those of increased years. Sometimes, the enlargement or abscess of the strangles is seen on the side of the face, and even on other portions of the body.

Treatment. Give the horse grass, or soft feed, and little or no medicine. The appetite will return when the abscess is opened, or breaks of itself. This is the great secret in the treatment of strangles. Do not poultice the swelling, as it will only thicken the skin. If anything is to be done to hasten the abscess, rub in a little of the ointment of Spanish fly. (See Medicines and Prescriptions.)

Stranguary.—This is a name given to the urine, when mixed with blood, and when pain is present while the horse is urinating.

Cause. Irritation of the bladder or kidneys, or both, from the use of the Spanish fly, either in the form of a blister, being too extensive, or too near the loins and kidneys; also, from the fly being given in an improper manner or in too large doses.

Symptoms. Frequent desire to pass urine, which is in small quantities, and bloody. Pain, irritation and fever are present.

Treatment. To remove the pain, give twenty drops of the tincture of aconite root every three hours, together with plenty of cold water to drink; also flaxseed tea, to horn, or drench down the throat of the horse, and sheath the parts from irritating substances. Take equal parts of good mustard and flour, mix with warm water, make into a soft paste, and lay over the region of the kidneys, or small of the back, occasionally moistening it with warm water and covering it with a dry cotton or linen cloth.

Strangulation.—This is a term applied to a part which is tightened, contracted or closed. Strangulation and stricture are terms implying different degrees of the same phenomena. Thus we speak of strangulation of the bowels from rupture, and of the glottis or head of the wind-pipe, when, from some cause or other, it is closed. Death of the horse is the result, if no opening be made lower down in the wind-pipe, to admit atmospheric air. Stricture is that condition of the wind-pipe or glottis which when contracted or pressed upon by enlargement of the glands of the neck, or thickening of its own membrane, diminishes the space or width of its calibre, giving rise to thick wind and increased breathing and cough.

Stringhalt.—This is an affection of the hind leg, and it is known from the peculiar way in which the hind leg or legs are raised from the ground—a quick, spasmodic jerk.

Causes. These are twofold. *First.* The loss of nervous influence, whereby the *extensor pedis* muscle—and possibly some others—is deprived of its proper power. *Second.* The peculiar anatomical articulation and general structure of the hock-joint of the horse are such that when the leg of a *dead* horse is stripped of its muscles the ligaments are not disturbed at all; and if the legs above and below the hock be caught hold of by the hands, and the leg straightened out, the moment the hands are taken from it, it will *spring* into a bent position, thereby imitating stringhalt, as near as can be. Thus the balance of power is not equal; the articulary ligaments of the hock are stronger than the muscles of the thigh. Hence, the moment the horse lifts his foot from the ground, the leg is *snatched* up by the power of the articulating ligaments.

Treatment. Restore the lost nervous influence; thereby the

muscles of the thigh are to be brought into healthy action. This will best be done by good feeding, and one grain of strychnia nux vomica given daily, for six weeks, in the horse's feed.

Stumbling.—Veterinary writers are nearly all silent on this subject, while those who say anything about it call it a *habit.* In this we cannot coincide with them, but regard it as a nervous affection—a nervous debility resulting in atony of the flexor muscles of the shoulder. A stumbler is unsafe, either for riding purposes, or for use in single harness when attached to a two-wheeled vehicle. Can such an animal be classed as *sound?* We think not!

Sunstroke, Coup de Soleil.—This disease of late years has become of such frequent occurrence, that although not mentioned by previous veterinary writers, it demands a notice from us. The chief symptoms are exhaustion and stupidity, the animal usually falling to the ground and being unable to go further.

To prevent it, allow the horse at short intervals a few mouthfuls of water, and fasten a wet sponge over the forehead. The sunshades now used by extensive owners of horses, will go very far in lessening the occurrence of this affection.

The following *treatment,* when attended to at once, in the majority of cases, will prove effectual.

First. Remove the horse from the harness to a cool, shady place. *Second.* Give two ounces of sulphuric ether; twenty drops of the tincture of aconite root, and a bottle of ale or porter as a drench to sustain the vital powers, and to act as a powerful stimulant in equalizing the circulation throughout the body; whilst, *Thirdly.* Chopped ice should be placed in a coarse towel, cloth or bag, and laid between the ears and over the forehead, secured in any way the ingenuity of the person in charge may suggest. If the legs be cold, bandages will be of advantage. Do not put the horse to work again until he is completely restored. Dumbness is the usual result of sunstroke—a species of coma—for which there is no cure. Horses so affected are of little use in warm weather, but are useful in winter.

Suppuration.—This signifies the secretion of pus, and is one of the terminations of inflammation.

Symptoms. Whenever suppuration is going on to any extent in or on the body of the horse, a shivering fit, similar to a chill, will

or may be seen, followed in a day or so, either by the discharge of a yellow pus from the nose, or the formation of an abscess on some portion of the body. Suspect suppuration when rigors and shivering occur, especially after accidents of whatever kind.

Treatment. First. Support the strength of the horse by good feeding, whereby the process will soon be over, and without any complication with it. *Second.* Do not physic or bleed, for those measures would prevent the process of suppuration from going on in its original place, and, perhaps, drive it to another. (See Metastasis.)

Surfeit.—(See Skin Diseases.)

Swelled Legs.—(See Grease, Sprains, Debility, and Dropsy.)

Swellings.—These are of different kinds—the hard, inflammatory swelling caused by injury, suppuration, and diseased bone; the soft and fluctuating swelling, which is generally circumscribed, and seen in diseases of the joints, as blood spavin, etc., and contain joint oil; the dropsical, or soft and *non*-inflammatory swelling of many and different parts of the body, at one and the same time. Each must be treated according to the cause of the swelling. (See Farcy.)

Sweenie.—This word or name is so deeply buried in obscurity that researches in every quarter have failed to discover its origin, or secure to it a satisfactory resurrection. It applies, however, when used by horsemen, to a falling away or shrinkage of the muscles of the shoulder and indicates not so much a lameness in the shoulder as it does a disease elsewhere—in the foot or leg, as corns and diseases of the pastern joint. ATROPHY should be substituted for sweenie, as it is generally sympathetic, and, moreover, means that the body or a part is diminishing in bulk.

Treatment. Remove the cause of atrophy or sweenie, and the effects will pass away.

Sympathy.—That condition which is developed in one part of the system or body of an animal, although not of itself a disease, but is the result of disease or accident happening to some other, or remote portion of the body. This sympathy is communicated through and by the nervous system. A nail in the foot, or a broken bone, is immediately followed by sympathetic fever, and general disturbance of the whole system. Herein lies the great

difference between animal and vegetable life. A branch of a bush or a tree can be lopped off without any disturbance to the life or health of the main trunk. No such immunity exists in the animal creation.

Synovia.—A clear, colorless and viscid fluid, secreted by the lining membrane of the joints, for the purpose of preventing friction, and allowing an easy motion of the heads of the bones over one another. Synovia sometimes changes in quality, becomes thinner and gives rise to swellings of the joints. (See Blood and Bog Spavin.)

Synchronous.—This name is applied to the action or beat of the heart, when it is in time with the beat or pulsation of an artery.

Systole.—The movement or contraction of the heart, as the systolic murmur.

Tabanidœ.—A species of flies which are a great annoyance to horses.

Tabes.—Wasting of the muscles of the body. (See Mesenterica.)

Talpæ.—A wart-like tumor, easily removed with a sharp pair of scissors.

Teeth.—(See Mouth Diseases.)

Tetanus.—(See Locked-jaw.)

Tetter.—(See Skin Diseases.)

Thick Wind.—(See Heaves and Broken Wind.)

Thick Leg.—(See Grease and Farcy.)

Thiselo.—(See Fistura.)

Thoroughpin.—An affection of the hock-joint, accompanying bog and blood spavin, characterized by soft, fluctuating swellings, containing fluid or joint oil in increased quantity, and an altered quality.

Treatment. The same as for bog or blood spavins (which see).

Thread Worms.—(See Worms.)

Throat Diseases.—(See Bronchitis, Cold, and Catarrh.)

Thrush.—See Foot Diseases.)

Thrombus.—(See Jugular Vein.)

Thumps.—This is spasm of the diaphragm, or the curtain

which hangs down and separates the cavity of the abdomen, or the belly from the chest.

Cause. Over driving and oppression, paralyzing the accessory nerve, and hence the flapping of the diaphragm.

Treatment. Place the horse in a cool, airy place, and allow him plenty of cold water, and if the noise, after an hour or so, does not subside, give two bottles of ale or porter as a drench.

Tongue, Laceration of the.—(See Mouth Diseases.)

Tonics.—(See Medicines and Prescriptions.)

Toxicology.—(The science of poisons, and their antidotes.)

Tracheotomy.—An operation to open the windpipe, in cases of closing of the tube by tumor, or thickening of its membrane. It is an operation rarely required, and moreover, not to be attempted by a non-professional person not acquainted with the art and science of surgery. Therefore, we will forego a description of it.

Transfusion.—This is the act or operation of transferring the blood of one living animal into the vascular system of another by means of a tube. The effect of transfusion is almost instantaneous.

Tread.—(See Foot Diseases.)

Trepanning.—This is an operation for opening into the bones of the head or face to elevate or raise a portion of bone which from accident has been depressed or fractured. The instrument used for this purpose is called a Trephine.

It is designed to cut out a circular portion of the bone, so that a smooth piece of iron is inserted in the hole, and used as a lever to raise the depressed portion to its proper level.

Trismus.—(See Locked-jaw.)

Tubercles.—(See Glanders.)

Tumors.—Tumors may be defined as circumscribed swellings of different sizes, without inflammation, and differing from one another, according to their situation and their nature.

(1.) Encysted Tumors.—This is a variety of tumors often seen about the side of the nose of the horse. It is about the size of a pullet's egg, soft, and elastic to the touch, with no heat, inflammation, or soreness of any kind.

Cause. Closing of the sebaceous openings of the part. Hence

the elevation, swelling and filling up of that portion of the skin which contains the sebaceous or suet-like matter.

Treatment. Open the part with a knife, and inject for a few times into the inside of the tumor a teaspoonful of the tincture of iodide, to kill the walls of the cyst. The surgeon sometimes cuts these tumors out in the form of a soft ball without opening them. This requires a steady hand.

(2.) Encephaloid.—This term means a brain-like tumor, so named from its structure being like that of the brain. It is one of the kinds of cancers which sometimes attack the horse, but is more frequently seen in the dog and ox.

Cause. A specific poison in the blood, not as yet well understood.

Symptoms. It is solid, hard, irregular in shape, and knotty, with no hair upon its surface, and presenting a smooth and shining aspect. These tumors grow rapidly, and finally break on the top, presenting an angry and malignant sore or ulcer, which cannot be healed without first removing the entire tumor with a knife, and treating it as for a simple sore.

(3.) Fibroma.—This is a fibrous or warty-like tumor, familiar to most persons, and is attached chiefly to the skin only. It is troublesome only in so far as it is apt to bleed, thereby keeping up a degree of irritation—especially in warm weather, because of the sweat and flies.

Treatment. Those persons who have not sufficient nerve to cut them off with the knife can take arsenic, one drachm; hog's lard, four drachms; mix, and make an ointment; rubbing in and around the tumor, once a week, a small portion of the salve. In a short time it will fall off.

(4.) Fatty Tumor.—This is a variety of tumor of frequent occurrence in horses, and is composed of fat, as its name indicates. It is sometimes called adipose and lipoma by the surgeons of continental Europe.

Symptoms. A round, ovoid shape, with a firm feel, but not hard nor elastic, or at least not so much so as the encysted form.

Treatment. Take a sharp knife, and after getting a twitch upon the horse's nose, and one of the fore legs held up, make a straight cut over the centre of the tumor through the skin only. Then

roll out the ball of fat with the fingers; the knife here is of no use. The simply opening the skin, and rolling out the fatty tumor, is called occulsion, and when cleverly done looks well.

(5.) CANCEROUS.—(See Melanosis.)

(6.) MELLANOID.—(See Melanosis.)

(7.) BONY TUMORS.—A species of tumor attacking the bone, and is called *osteo-sarcoma* (which see). When attacking the head, it is called *osteoporosis* (which see).

(8.) VARICOSE.—The horse is not often the subject of varicose tumor of the veins, simply from the fact that no garters or other ligatures are tied around the legs, interfering with a free circulation. The *saphena major*, however, is the only vein liable to varicose, arising from bulging of the hock-joint, and in cases of bog and blood spavin, and thorough-pin (which see).

Tympanitis.—This term means drum-belly, such as occurs in cases of flatulent colic (which see).

Typhia.—Typhinia.—Typhus.—These are continued fevers, and are lit up and fed by a specific zymotic matter in the system which is generated when horses are badly fed and crowded together in an inadequate supply of air. The fevers of glanders, farcy and pyemia are good examples. The seeds of the disease can only be got rid by the effectual destruction of the typhinia—its existing ferment or leaven.—(See Glanders.)

Typhoid.—A low form of disease, accompanied with fever. Example: Influenza, or catarrhal fever. (See Influenza, and Gastritis Mucosa.)

Typhosus.—A species of fever at present, perhaps, not very clearly defined, and consequent upon changes that have taken place in the blood of horses—a blood disease resulting in nervous prostration. It is comparatively a new disease, and is, in different parts of the country, called and known by various names, according to the chief symptom there observed. It is known in New York as *cerebro* spinal-meningitis by those who have seen the disease, because it is thought to be like when a man is affected in the meninges—or membranes which envelop the brain and the spinal marrow—producing *choking*, *distemper*, *putrid fever*, *paralysis of the par-vagum*, or pneumogastric nerve, on account of the chief

symptom being the inability of the horse to at least *voluntarily* swallow.

The Symptoms of this affection in the horse are at first or in the early stage very latent or hidden. The chief of them is in the quiding of the food, as the holding it in the mouth and refusing to swallow; also, by placing a bucket of water or other fluid within reach of a horse so affected, when he will place his mouth into and agitate it, going through the process of deglutition or swallowing without consuming. The inability to swallow continues for some days, when, from loss of sustenance and change in the circulating fluid, the horse lies or falls down exhausted. It should be observed that while the horses on Long Island, and on the Delaware flat lands could not voluntarily swallow, they were enabled to do so when drenched out of a bottle, with their heads elevated. This peculiarity, however, may be ascribed to gravitation having its own way, and to relaxation of the paralyzed muscles of deglutition, which, though offering no assistance, interpose nothing. Those cases that seem to live but a few days, as is related by some persons, die because the symptoms are not observed until weakness and consequent inability to stand force themselves to recognition. There are other symptoms that we might mention, but they are alike common to all diseases of an *asthenic* or low or depressed type. It is a disease wherein the *vis vitæ* is extremely low, and it is consequently very fatal—time not being allowed in many instances for the treatment to supply, through it and the vis a Tergo, the elements of nutrition.

Treatment. In a disease of this kind, where nervous force is almost gone, we suggest the diffusible and more fixed stimulants, with carminatives and tonics—which are embraced in the following formula, to be given, mixed in a bottle of cold water, five times in the twenty-four hours:—Powdered carbonate of ammonia, three drachms; powdered capsicum, two drachms; powdered pimenta berries, four drachms; tincture of nux vomica, twenty drops; mix. Drench the horse with cold water several times daily, adding sixty drops of commercial sulphuric acid to assist in sustaining the flagging powers of life. Corn meal may also be given in the same way, and for a like purpose.

By way of experiment, galvanism or electricity may be em-

ployed over a blistered surface made along the pneumogastric nerve on each side of the neck. Injections indermically—under the skin—with strychnine, may result in gaining time for other measures to become effectual as a cure.

The cause of this disease in horses does not differ, we think, materially from those that give rise to like diseases in men; for on the shore opposite to Long Island in 1867, and at the very time horses were affected with the disease, over 400 deaths were recorded in the human family from an affection similar to paralysis.

The prevention of this disease, like many others that affect domestic animals, is more easily accomplished than the cure. Use dry stables; also good feed, in which a drachm or two of the sulphate of iron, or five grains of *arsenic* should be mixed, and given once daily, when such diseases are in the vicinage, for eight to ten days at a time.

Ulcers.—I do not intend to speak of *internal* ulcers, as of the brain, chest or belly—they being beyond the skill of the most learned, much less the non-professional reader—but will confine myself to *external* ulcers, as of the skin and flesh.

(1.) HEALTHY ULCERS.—These are generally the result of an accident, or incision with a knife or other instrument. Every sore which does not heal by what is called the first intention, but suppurates, is called a healthy ulcer.

Treatment. Most healthy ulcers will heal of themselves: at most all that is required to be done, especially in warm weather, is to keep the granulations (which see) from growing too fast, and above the level of the skin: and for this purpose apply a solution of blue stone, or chloride of zinc as follows: Chloride of zinc, four grains; rain water, one ounce; mix. Or, powdered blue stone, two drachms; rain water, eight ounces; mix. One of these mixtures may be applied once a day, just sufficient to moisten the sore, and keep proud flesh down. The simple ointment of the drug stores is a good healing salve, and should always be in the house and at hand.

In neglected sores, and when proud flesh has grown up above the level of the skin of the healthy part, take a stick of caustic potassa, and hold one end with a piece of cloth, or stick one end in a goose-quill, and touch the sore with the other end of the

caustic a few times, till the proud flesh turns black. Repeat at another time, if necessary. Keep the caustic in a tightly-corked bottle, or else it will be dissolved into fluid when next wanted.

Sewing the lips of wounds and sores together is not now much practised, as the stitches are apt to rot, and the parts swell, in consequence of which the sewing gives way, thereby aggravating the sore.

Adhesive plaster is also not advisable, as, when it is put on over the sore, it prevents the proper fluids thereof from being discharged, and the moisture serves to loosen the plaster.

(2.) INDOLENT ULCERS.—This variety of ulcer or sore usually attacks the skin of the legs and heels of horses (see Phagadena, Grease, and Farcy), eating down into or below the surrounding surface. It is covered with a whitish-gray matter, and, in some few cases, small red spots are seen looking through the white covering. These are granulations, and are possibly unhealthy ones. (See Frost Bites.)

Cause. A bad habit of the body and blood; poor feeding, and debility.

Treatment. Apply powdered blue stone to the ulcer, to eat off the unhealthy surface. Then apply a poultice for the night, made of any soft, moist material—say boiled turnips, carrots, or bran and flaxseed meal, made with a little warm water. The face of the poultice should be covered with powdered charcoal or brewer's yeast. Continue the treatment with an occasional poultice, and the solution of blue stone.

Feed the horse well, and give half-ounce doses of the sulphate of soda, once a day, to purify and enrich the blood.

(3.) IRRITABLE ULCER.—Example: Sores on the pastern-joint irritated by the flies, heat and sweat of summer.

Symptoms. Cannot be touched without they bleed; angry-looking, and very sore: highly inflamed, and extremely vascular.

Treatment. Difficult to cure during warm weather, but easily healed in moderate weather, when there are few or no flies.

Dress the sore with oil of olives, one ounce; creosote, half an ounce; oil of turpentine, half an ounce; mix, and apply to the sore with a piece of soft cloth, once a day. Do not let any of the mixture run down on the hair, which will, if so treated, fall off.

Urinary Calculi.—(See Stone in the Bladder.)

Urine, Bloody.—(See Hæmaturia.)

Varicose.—The enlarged vein on the hock-joint, caused by bog and blood spavin. (See Spavins and Tumors.)

Venesection. Bleeding by opening a vein.

Ventilation.—Few persons are aware of the vast importance of pure, fresh air in the maintenance of health, and the prevention of disease, in both man and beast. However necessary pure air is in health, it is still more so to an animal when sick from fever and disease; and indeed there are diseases in which no treatment can or will be successful, no matter how skilfully directed, without pure fresh air, and cold water to drink. Show me a badly ventilated stable or barn, and I will show you in the spring of each year horses fevered and diseased. (See Disinfectants.) Coughs, colds, lung fever, influenza, grease, scratches, farcy and glanders, are the results of bad ventilation.

Who has not heard with horror of the BLACK HOLE AT CALCUTTA, in which one hundred and forty-six men were confined for a few hours without ventilation, and only twenty-three survived the short confinement! Horses were confined only for a few hours without ventilation, in the case of two military expeditions sent out by England—one to *Quiberon*, and the other to *Varna*—in which the hatches of the ships were put down, and only for a short time, but sufficiently long to produce glanders in almost every horse. Hence, it will be perceived that, without good ventilation, a high standard of general health cannot be maintained very long.

Vives.—A term given to bastard, or an irregular variety of strangles. (See Strangles.)

Warts.—(See Tumors.)

Warranty.—A form of certificate given on the purchase or payment for a horse. There is nothing mysterious, nor yet of much importance, as to the form of a warranty. The best forms amount to nothing, in the eyes of the law. Horses are like other merchandise. If not as represented, damages or difference in value can be obtained by a process of law, providing the seller can be found, and has property which can be levied upon. 'Tis true, in such a case, an action in *tort* may be brought whereby, if

payment is not made, he can be sent to prison for a while, or till he can claim the benefit of the insolvent act.

Few persons will bring an action at court for swindling or getting money under false pretences, by horse dealing, for it will be difficult to maintain such an action, and get a verdict upon it. (See Soundness.)

Warbles.—(See Skin Diseases.)

Water Farcy.—(See Dropsy and Farcy.)

Weeping Eye.—As its name indicates, this is a flow of tears from the eye down the side of the face, instead of through their proper channel.

Causes. Obstruction in the lachrymal sac, or nasal duct, from a disease called *fistula lachrymalis.*

Treatment. This is the province of the surgeon and anatomist.

Wens.—The common name for external tumors.

Wheezing.—This is a sound given from a horse having enlarged glands, or thickening of the membrane of the wind-pipe, or the glands pressing upon the head decreasing its calibre. Whistling is caused by the same alteration of structure in the wind-pipe.

Whirl-Bone, a Sprain of the.—(See Sprains and Hock.)

Wind Galls.—Are soft but elastic swellings or enlargements. They are non-inflammatory in character, and are produced by the same cause, governed by the same laws, and present the same phenomena as bog, blood spavin, and other enlarged or distended bursa of joints, which are all produced by, and are evidences of, hard work. No treatment for them will be satisfactory, as they will return again, even if they have been removed.

Wind-Sucking.—(See Crib-biter.)

Worms.—The worms which inhabit the body of the horse are of many varieties. Some of them are harmless, while others interfere with his health. They are, 1st, The bot or *œstrus equi*, found inhabiting the stomach. 2nd. The *æstrus Hæmorrhoidalis* or *Fundamental* bot found in the rectum, and often seen about the anus, and under the tail. 3rd. The *strongylus, and Filaria*, found in the aorta, and other blood vessels. 4th. The *ascarides vermicularis*, found in small cells within the mucous covering of the cœcum, or blind gut. 5th. *Filaria*, found in the aqueous humor of the eye.

(1.) Stomach Bot.—These worms are the result of turning

horses out to pasture in the summer months, and are produced from the eggs laid or glued to the fore legs of the horse by the bot fly.

Symptoms. An unthrifty coat, and loss of flesh after a run at grass, may be taken as an indication that bots are present within the stomach.

Treatment. Improve the condition of the horse, so that the debilitating effects of the bots' presence may not interfere with the general health and condition of the horse; for it must be borne in mind that *no* medicine can, or will, dislodge or destroy these parasites short of killing the horse also. Once the eggs are in the stomach, which seems to be the natural *nursery* both for their protection and the propagation of their species, they cannot be removed by force. In one year from the time the eggs are taken into the stomach, will the bot be a perfect chrysalis, and will fall from the coats of the stomach, and be expelled with the excreta or dung. In a short time after, it will be provided with *wings*, and fly about, commencing the propagation of its species which must pass through the same period of probation or incubation as its progenitors. Give iron and gentian, in addition to good feeding, to prevent the bots from debilitating the animal too much. Take powdered sulphate of iron and gentian root, each three drachms; mix, and make one dose, to be repeated twice a week.

(2.) FUNDAMENT BOT.—Like that of the stomach, but also the result of a run to the grass. Instead of the eggs being deposited upon the legs, they are stuck to the muzzle or lips of the horse, and are the color of the skin, hence not often seen.

Symptoms. The following year, during the summer months, the *larva* of this species will be seen sticking about the anus and under the tail, which in spirited horses prove a source of great uneasiness and irritation.

Treatment. Injection of linseed oil, or tobacco smoke.

(3.) STRONGYLUS.—This variety, and a species of Filaria, are sometimes found in the blood vessels, and are similar in effects produced in the horse, to those seen in sheep affected with rot.

Cause. Feeding on wet and marshy land, and pasture having been flooded with water. Who has not heard of the effects produced from this cause, in animals grazed upon the course of the river Nile, in Egypt, after each inundation?

Treatment. Support the strength by good, generous feeding, and give iron and gentian, each two to three drachms, once a day, removing the animal to high and dry pasture.

(4.) ASCARIDES.

Cause. A bad habit of body, called cachexia and chlorosis.

Treatment. Give iron, gentian and arsenious acid, in the following manner: Powdered sulphate of iron, two drachms; gentian root, two drachms; arsenic, five grains; mix, and give in one dose in mixed, cut or soft feed, twice or three times a week.

Wounds.—They are divided into simple, incised, contused, lacerated, punctured and poisoned. Wounds are more or less dangerous when entering the chest and belly, as are also poisoned wounds, or those from the bite of a mad dog. (See Bites.)

Wounds followed by bleeding will be found treated of under the article on Bleeding (which see).

Contused, lacerated and punctured wounds are generally followed by suppuration (which see), which should be encouraged by warm poultices applied to the parts, and should be kept freely open to allow the pus free escape. Wounds entering the belly or chest should be treated by placing a pad over the part to exclude the air, followed by the application used in simple wounds. Keep down pain by giving twenty drops of the tincture of aconite root, three times a day, for two days only. Poisoned wounds will be found treated of under the article on Bite of Mad Dog (which see).

Wourali.—A name given to a poison which is prepared by the Macousi Indians, of South America, and used by them on the points of their arrows. This poison has been advocated by some in the treatment of locked-jaw in the horse, but in my experience nothing favorable can be said of it as a cure for this terrible disease. The power of this poison is so great, that in four minutes after an ox, of one thousand pounds weight, was pierced in each thigh by an arrow poisoned with it, the poison took effect, and in a few minutes more his head and legs ceased to move. In twenty minutes from the time he was wounded, the ox was dead, having apparently died without pain.

Yellows.—Discoloration of parts of the skin from liver disease. (See Liver.)

Yellow Water.—(See Liver Diseases.)